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MEMORY TRAINING

A COMPLETE AND PRACTICAL SYSTEM

FOR

DEVELOPING AND CONFIRMING THE MEMORY

ADAPTED TO ALL KINDS OF SUBJECTS

BY

WILLIAM L. EVANS, M.A. (GLASG:)

(CERTIFICATED IN SCIENCE AND ART, SOUTH KENSINGTON)

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INTRODUCTION.

We hear a great deal in these days about "discoveries." No doubt, from a scientifical point of view, this is an age of discoveries; but in the region of the mind very little is known to-day that was not known to Plato and to Aristotle. What does Aristotle say about the act of remembering?

"When, therefore, we accomplish an act of reminiscence, we pass through a certain series of precursive movements, until we arrive at a movement on which the one we are in quest of is habitually consequent. Hence, too, it is that we hunt through the mental train, excogitating from the present or some other, and from *similar* or *contrary* or *coadjacent*. Through this process reminiscence takes place."

The above is Sir William Hamilton's translation of a passage from the tract "De Memoria et Reminiscentia," and is the key to this little volume. The three laws of mental suggestion are thus clearly enunciated by Aristotle. To talk, therefore, of *discovering* these laws in our days is "*primâ facie*" absurdity—a bait to catch the unwary and a means to make money. They are principles which we have been using all our lives, and it is this that gives them importance.

"The rules you find in grammars were not made by grammarians, whose province it is to state and explain

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FROM THE BEQUEST OF

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14 Dec. 1889.

them, nor by the writers of books, whose province it is to obey them, but by the genius of the language." The rules were in existence long before Apollonius of Alexandria (surnamed Dyscolus) thought of systematizing them. But this does not mean that we ought not to study the rules of grammar; indeed, no subject should have more attention in our schools. Men reasoned deductively long before Aristotle introduced the name "Syllogism"; he showed how to do consciously what was before done unconsciously. But this does not imply that we should not study the laws of thought. We have every reason to think that an analysis of an act of reasoning contributes to clearsightedness and strength of understanding.

In like manner, men made use of the laws of suggestion before Aristotle numbered them and called them by name, and before Hobbes pointed out how we glide from thought to thought; but the *conscious* application of these laws will contribute to mental activity and vigor. As the study of grammar adds to correct speech, and of logic to consistent reasoning, so will this study add to the proper arrangement and the close adhesion of the varied mental impressions in the great "storehouse of ideas." Every process has its laws, and it is better, though not necessary, that these laws should be known. The laws of memory have been deplorably neglected. Yet all of us wish to have a good memory. If this little book will add its mite to the raising of the subject to prominence, to the showing of its importance, and to the putting of each one on the right path to improvement of the memory or the prevention of its deterioration, the writer will be fully rewarded for his labor.

There is a great deal of skepticism as regards the subject of memory, owing to the inferiority of some of the systems and the way in which some of these systems are advertised. I have, therefore, resorted to the plan of making frequent quotations from eminent writers to illustrate the question under consideration. I hope this will tend to give confidence to the public generally, and to raise the subject from the quackery which has hitherto enveloped it to the prominence which it deserves.

In the former part of the book the subject has been looked upon from a physiological standpoint; in the latter part from a psychological view. Throughout, however, the two—physiological and psychological—have been considered as two sides of a "double-faced unity."

W. L. E.

September 1, 1888.

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THIS LITTLE VOLUME IS RESPECTFULLY DEDICATED TO THE STUDENT WHO WILL *MASTER* IT.

W. L. E.

Elsie—But these will fade.
Prince Henry—Themselves will fade,
But not their memory,
And memory has the power
To recreate them from the dust.

—*Longfellow.*

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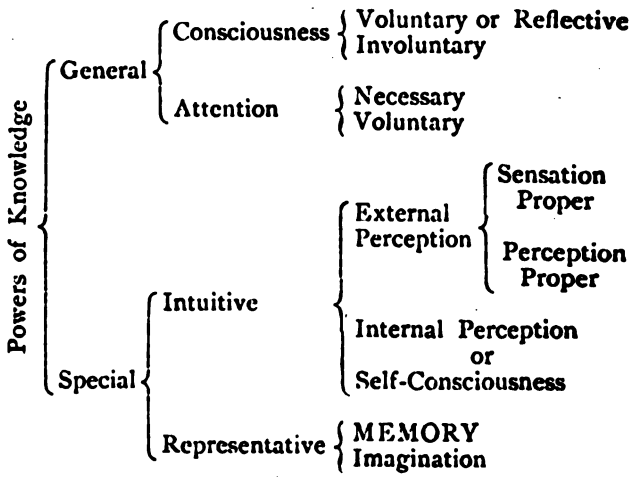
TABLE OF TWOS.

THE following "table of twos" shows the relative position of MEMORY as a power of knowledge:



MEMORY

AS A

POWER OF KNOWLEDGE.

LESSON I.

THE ELEMENTS OF MEMORY.

Impression—Retention—Reproduction—Reference to Past Time.

(This lesson is to be slowly and carefully read)

DEFINITION OF MEMORY.—There are many ways of defining memory. It may be defined as the ideal revival, as well as the recognition, of a past circumstance in our experience.

Altogether there are four elements—impression, conservation, reproduction and localization in time.

We must begin with the impression, for if we have not received that we have nothing to retain and nothing to recall. How seldom it is that we get a *vivid* impression! In other words, we do not pay attention. The often repeated expression, "I forget," ought to be changed into "I did not pay attention."

1. IMPRESSION (im or in and *prēmĕre* = to press).

When I look at an object, vibrations (rays of light) from that object fall upon the retina of the eye therein forming an inverted image. The image is probably made by molecular changes in the substance of the retina. This nerve force is carried to the brain by means of the optic nerve and its continuations. The current now arrives at a certain cell bringing about a movement in the contents of that cell. This constitutes an impression.

There are certain conditions of mind which are not at all favorable to the receiving of an original imprint. We may mention two:

(*a*) *Mind-wandering* is an enemy to good memory. We ought to direct our thoughts with intensity to what we are engaged in, and not to allow them to be led astray by every suggestion that happens to occur—to wander like a ship without a rudder. Let the day dreamer begin to read a page of a book. In the third line he meets with the word "conqueror." This word leads him astray. He begins to think of William the Conqueror landing at Pevensey, in the south of England, and, forsooth, of Cæsar landing in the very same spot. Then he follows Cæsar to Gaul, goes with him across the river Rubicon, to Rome, and perhaps to Egypt. By this time he finds himself at the bottom of the page—having *mechanically* read the whole. But what does he know concerning the ideas expressed in that page? How many vivid impressions has he received? How can he reasonably expect to remember the contents? Lack of attention owing to mind-wandering is a frequent cause of bad memory. Let the reader realize this, and let him exercise his (or her)

will-power, and direct his thoughts with intensity to the matter in hand.

(*b*) *Fatigue* in mind or body is most unfavorable to memory—both to the receiving of impressions and to their recall. We know by experience that, when tired, we cannot pay attention. It is with the greatest effort of the will that we can direct our minds to anything at all. The brain tissues are worn out, and the blood is charged with the products of waste. Nutrition suffers and languishes. Rest is necessary to bring back the normal condition of the brain. The tissue must be renovated and the blood purified. When we are fatigued the received impressions are not *vivid*, and the reproduction, if possible, is very slow. If very tired some people are unable to recall even their own names. This is very well exemplified in the experience of Sir Henry Holland:

"I descended on the same day two very deep mines in the Hartz Mountains, remaining some hours under ground in each. While in the second mine, and exhausted both from fatigue and inanition, I felt the utter impossibility of talking longer with the German inspector who accompanied me. Every German word and phrase deserted my recollection; and it was not until I had taken food and wine, and been some time at rest, that I regained them again."

2. RETENTION (*re* = back, *tenêre* = to hold).

The received impressions must be registered—conserved. They must be stored up for future use. This registration, as shown above, is a modification produced in the brain—in the nerve cells and nerve filaments. We must not forget the nerve fibers, for it is

by means of these the different impressions are joined together. The whole process depends upon nutrition, which in its turn depends upon the circulation of the blood—the brain receiving an enormous amount of blood.

The weight of the brain is usually about *one-fortieth* that of the body, but it receives about *one-sixth* of the whole circulating blood. Memory fluctuates with the state of the body. If the blood is poor, nutrition is not complete and impressions are not fixed—not recorded. This accounts for the marked difference between childhood and adult age. In the one nutrition is good and associations are easily formed. In the other there is less activity; the brain is more callous, less favorable to vibration and not so copiously supplied with nutritive blood; the vibration is not so thorough, the impression is not so deep, and the conservation is not so permanent. If this is so we can understand the old saying, "*Mens sana in corpore sano*" —a sound mind in a healthy body. Let the student carefully consider this matter.

Sir James Paget in his "Lectures on Surgical Pathology" answers a question which very naturally arises in reference to nutrition. "How can the brain be the organ of memory when you suppose its substance to be ever changing? or how is it that your assumed nutritive change of all the particles of the brain is not as destructive of all memory and knowledge of sensuous things as the sudden destruction by some great injury is? Because of the exactness of assimilation accomplished in the formative process; the effect once produced by an impression upon the brain, whether in perception or in intellectual act, is fixed and there *re-*

tained: because the part, be it what it may, which has been thereby changed, is exactly represented in the part which, in the course of nutrition, succeeds to it."

3. REPRODUCTION (*re* = again, *pro* = forth, *dūcère* = to lead).

It is not enough to receive and retain impressions. We must be able to recall them—to read the record. This also seems to be dependent upon the circulation —upon the quality and quantity of the blood. Fevers and stimulants bring more blood to the brain and often cause the recall of the most trivial incidents. Very remarkable cases are mentioned by Dr. Abercrombie and Dr. Wm. B. Carpenter. Mr. Herbert Spencer in his "Principles of Psychology" says:—"Impressions of trivial things, in which no particular interest was taken, often survive in memory when impressions of much more important or imposing things fade away; and, on considering the circumstances, it will frequently be found that such impressions were received when the energies were high—when exercise, or pleasure, or both, had greatly raised the action of the heart. That at times, when strong emotion has excited the circulation to an exceptional degree, the clustered sensations yielded by surrounding objects are revivable with great clearness, is a fact noted by writers of fiction as a trait of human nature."

The revival depends a great deal upon the vividness of the impression as well as upon the association formed between the different ideas. The more relation we establish between ideas, the more readily will one recall or suggest another.

4. REFERENCE TO PAST TIME (*re* = back, *ferre* = to carry).

To perfect the act of memory we must localize the event in time. This reference to the past time is the characteristic of memory and distinguishes it from imagination and mere fancy. All events take their place in the great chain of experience. In reviving the past we are conscious of a retrogression—starting of course from our present state of mind. But going over every link in this backward movement would be a long process. Fortunately nature has shortened the process for us by placing *landmarks* here and there on the "sand of time"—*points* to which we may refer on our way to eternity—*milestones* upon which we may look back that we may have some idea how much of the journey has been already traveled. Let the letters of the alphabet from a to o represent the events that have happened during a certain portion of your life. Let B, E, H, K and N be incidents that greatly impressed you. In looking back upon your past life you will probably be able to realize that K took place before N and after H; that E came between B and H. Again, you may not be able to place g between f and H, but you will know that it is somewhere between E and H. B, E, H, K and N are thus reference points—events in reference to which you measure distances in time. To all Americans the civil war is a prominent point of reference. They ask themselves "did such and such an event happen before or after the war?" More will be said upon this subject when we come to look upon memory from a psychological standpoint. Ribot puts the matter very happily in the following passage:—"On the 30th of November I am looking

for a book of which I have great need. It is coming from a distance, and its transportation will require at least twenty days. Did I send for it in time? After a little hesitation I remember that my order was given on the eve of a short journey, whose date I can fix in a precise manner as Sunday, the 9th of November—with this, recollection is complete. In analyzing this case, we observe that the principal state of consciousness —the order for the book—is first thrown into the past in an indeterminate manner. It arouses secondary states, compares them, and *places itself before or after.* 'The image travels back and forth along the line of the past; every phrase mentally pronounced gives it a new impetus.' After a number of oscillations, more or less extended, it finds its place; it is fixed, remembered."

Résumé.—We started by saying that memory is the ideal revival and recognition of a past experience. What does an impression mean, and how is it revived? Look at an object. Vibrations from that object will fall upon your eye and an inverted image of it will be formed upon the retina which is an expansion of the optic-nerve. The image is made by the arrangement and vibrations of the substance constituting the retina. The movement in the small particles of the retina involves force. This force is transmitted into the brain—into the visual center. This center is situated at the back of the head and called by Dr. Ferrier the occipito-angular regions. The force on reaching its cell—destination—brings about a vibration in the substance of that cell—a rearrangement in the molecules of its contents. This cell modification we may call *impression* and the consciousness of this impression may be called *sensation.* "When the same cell modification is again excited, the object

is *re*-presented or rises up in idea"—the excitation taking place according to the LAWS OF SUGGESTION. This is *revival*. Reproduction, therefore, means the re-excitation of a previous molecular rearrangement in the substance of a brain-cell—a removement of a movement. But what are the laws by which the recall is brought about—by which we obtain a *copy* of the *original*?

EXAMINATION PAPER.

The object of these examination papers is :—

(*a*) To assist the student to see what the chief points in each lesson are ; (*b*) to enable him to test himself as to the understanding of what he has read ; (*c*) to cultivate the habit of reflection. The answers should be even written, for this would contribute to accuracy and definiteness. It would also further the process of comparison.

1. Mention the elements of memory.

2. Name few conditions which are unfavorable to the receiving of an original impression.

3. Give some account of the manner in which the image of an external object is formed upon the retina of the eye.

4. Give some of the reasons why we take in ideas more readily in childhood than in old age.

5. How can the brain be the organ of memory when you suppose its substance to be changing ?

6. Why do we sometimes remember a trivial incident ?

7. How do you distinguish memory from imagination ?

8. Write an abstract of the Résumé—giving in your own words the substance of it.

LESSON II.

(*Optional.*)

THE LAWS OF SUGGESTION.

Similarity—Contiguity—Contrast.

If the world is spiritual, its essence is a spirit. All is a manifestation of *One Being*. Starting with that assumption we see that the principle which underlies all reality is that of *Likeness or Similarity*. If the origin is a Unit, that Unit must be present in some form or another and in some degree in all its manifestation. If the world is an evolution of a being—a unit, self-originating, self-evolving and self-maintaining, the fundamental principle of such a world must be the Law of Unity.

1. The Law of Similarity (Lat. *similis* = like).

In nature we now and again catch a glimpse of the Designing Hand of One Supreme and Intelligent Being. But as the emanation becomes more and more complicated the underlying sameness becomes more and more obscure. "We see through a glass darkly." Indeed some philosophers have gone so far as to deny the existence of such a state of mind as the consciousness of analogy. But how do we get general ideas, such as gravitation? How did Sir Isaac Newton arrive at this universal idea? By anticipation. He saw the apple fall and asked himself, 'Why do not the heavenly bodies fall as this apple did?' He at once conceived the idea that the whole universe was full of bodies tending to

fall. He had the power of penetrating into the secret of nature. He proceeded by *analogy*. We find resemblance among individuals. Is not this resemblance a reality? You say that the existence which individuals have is passing and limited. True, but they come and go according to fixed laws and conditions, and each participates more or less of a common type or kind. The division into genera and species is not a mere arbitrary distinction or classification. It is based upon *actual* resemblance. We examine two or more objects and we notice marks of resemblance between them. We accordingly classify them. The better we understand them the more points of agreement we see. In this way we rise from the particular to the general—from the many to the unit—from the complex to the simple. We even find the different kinds of things mutually helpful. A unity of purpose runs through the whole of our varied experience. Hence the idea of *design*—one supreme creative and intelligent Being. This conception reduces the universe to unity. Mere coincidence cannot do this for it involves no design. Further, the most general of our ideas such as time and space, which are embodied in the facts of our experience, are part of the very structure of our intelligence. The whole course of experience shows that the plan on which experienced things are constructed is identical with the forms of intelligence. There is a *harmony* between Nature and Mind. By means of experience we rise to a better knowledge of the Ideas of Creation. All scientific progress rightly viewed as to end, not merely as means or method, is a fuller knowledge of the Divine ideas, of ourselves, and of our relation to the Creator; not a removal from God but a bond of union

with Him. It was a "flash of similarity" that caused the poet to exclaim, "One touch of nature makes the whole world kin."

It is this principle that enables us to compare and classify, to discover and invent. But as a principle of reproduction in memory it is of less importance than Contiguity. Of course the two often go together. Similarity may be confined to those ideas which are wholly or partially identical—to terms which express ideas that have something in common. Here, the element now present reminds us of another not present, not because the two have been in fellowship before but because there is a resemblance between them. One has affinity for the other—one attracts the other. As Professor Bain points out, there may be consciousness of identity without the power of recall. This shows that similarity and contiguity are two distinct principles. It is an instance of likeness unaided by contiguity. "We remark, 'I have seen or heard that before, but I cannot tell you when or where.' This is a fact; and is surely different from the state implied when I say, 'That's new to me, I never saw or heard that before.'"

The fundamental law then is the Law of Similars. It is perhaps the only principle to beings superior to ourselves. But our powers are very limited. We are finite—unable to penetrate much below the surface—unable to see the substratum of likeness running through all. We are shackled by our own ignorance. Being thus incapable of seeing this relation of attraction between many of the different things as we experience them, it cannot be the bond of union between them. It cannot be the principle by which one revives

another in memory. Another law must come to the rescue and aid our imperfection—that of contiguity.

2. The Law of Contiguity (*con* = together, *tangère* = to touch).

This is the coupling of one thing with another owing to their proximity. It is the placing of elements together in such a manner that one may recall the other in memory. It is the adhesion by experience—the coherence—of two facts or ideas which may or may not be otherwise connected. To secure a strong cohesion the two elements must be in fellowship for a certain *time*. Nor can we overlook the power of repetition, whatever may be said to the contrary. The more attention we pay to the two ideas, the longer we dwell upon them and the oftener we repeat them, the stronger the bond of union will be. Still we must clearly understand that, if one idea does not succeed in reviving another previously associated with it, the fault may not be with the original union. The state of mind at the time may not be favorable to the revival. When we are tired either in mind or body we cannot receive vivid impressions, and, moreover, we cannot *recall* ideas we once experienced with great vividness. Our feelings and emotions are factors of memory.

This law of contiguity or proximity, however, is the mainspring of our power to bring back the past. How lenient it is to our imperfect faculties! It is not absolutely necessary that we should see any analogy between the two things in question. It is enough that we have thought of them in conjunction one with the other. It is the law of *experience*. So contiguity for one man may not be so for another because their expe-

riences differ. *Moses* and *ark of bulrushes*—this is a case of contiguity for those only who have read or heard that Moses, when three months old, was placed on the banks of the river Nile in "an ark of bulrushes."

"Moses" will revive "ark of bulrushes" and *vice versa* in virtue of the very fact that the ideas have been thought of together. We must not, however, imagine that the two ideas *must* have been actually thought of together—at the same time or nearly the same. The cohesion may be *indirectly* formed. If, in our experience, B accompanies A as well as C, then A is connected with C and may excite one another. Further, let A and a be conveyed to the mind at the same time or nearly the same time. In a similar manner let B combine with b and C with c. The result may be the following combinations:—A B, B C, A C, Aa, Ab, Ac, Ba, Bb, Bc, Ca, Cb, Cc, ab, bc, ac. Let the student make a little diagram.

The possible combinations of ideas may be infinite. Each letter in the alphabet always retains its identity. So does each idea. B is B everywhere, but it contributes to the formation of an almost innumerable number of words in the several languages. Whether we can in this or similar way account for *all* of our ideas—both simple and complex—is another question. The Associationists have given great prominence to the principle of contiguity, even eliminating the law of similarity, accounting for all mental operations by contiguous adhesion. Dr. Thomas Brown says:—"All suggestion may be found to depend on prior *co-existence*, or at least on such proximity as is itself very probably a modification of co-existence," provided we take into con-

sideration the "influence of emotions and other feelings that are very different from ideas, as when an analogous object suggests an analogous object by the influence of an emotion which each separately may have produced before, and which is therefore common to both." Brown here unconsciously admits the law of similars, for a *similar* emotion accompanying different objects forms a bond of union between them. Besides, the Associationists forget that contiguity is the grouping together of objects and ideas in *time* and *space*. As we talk of simultaneity and succession we come upon the idea of time. When we think of distance, nearness, co-existence, we include the notion of space. These are the two fundamental ideas of all our perceptions, apart from which there is no perceiving. The notion of time is a law both of perceiving and imagining object—it is omnipresent in all our consciousness. So with space as far as perception is concerned. You can transmute the object in space, but space itself ever remains the *same*. There is unity in perception. We bring everything under the forms of time and space. Whether any power of human thought can transcend these forms is difficult to decide. It is at least clear that they are the necessary forms of our perception of objects—forms which we cannot think away.

Farther, contiguity alone will not enable us to determine whether the reproduction is accurate or not—whether the image we recall in memory is the exact image of the object we experienced in the past. This is done by the law of similarity. As already implied attempts have been made to reduce these two principles—similarity and contiguity—into one statement, but with little success. When they act in unison, as they

often do, the bond between the related ideas is at its maximum of strength.

There is another principle of mind which has been acknowledged as a reproductive force, though it has not taken the same rank as the above two.

3. THE LAW OF CONTRAST (*contra* = against, *stare* = to stand).

It may seem strange that likeness and unlikeness should both prove a source of suggestion. But has similarity any meaning for us apart from contrast, and *vice versa?* The world is a unity in and through *difference*, which is the only true unity. Some philosophers, while granting that opposites seem to suggest each other, still maintain that the real bond is either contiguity or similarity. Prof. Wundt, for example, looks upon contrast as a case of similarity under the influence of fluctuations of feelings. But there is a sense in which we cannot give too much prominence to the law of difference as it strikes at the very root of knowledge. The unity and permanency of the self or *ego* or knower amongst its varied states is the fundamental and primary condition of knowledge. This *ego*, with its modes and attributes underlying all our conscious life, gives rise to what is called the dualism of mind—the *ego and its states*. The self is the same throughout, however varied its states may be. In the expression "state of mind" we acknowledge that the mind is one and indivisible, and that the states are different. To acquire knowledge, therefore, the first essential law is that of *difference* and plurality. There is a *difference* between the all permanent self and its numerous varying states; unless, of course, we hold that the *ego* is merely the sum

of actual states of consciousness. *But without this unity of the self, consciousness of change would be impossible, and without change in mental states we have no knowledge.* We must *distinguish* the object known from the knower, whether the object be the states of our own mind or the outer world. We know everything (that we do know) in its relation to us. Progress toward perfection is through *distinction*—distinction of definiteness from indefiniteness.

Besides all this, the law of contrast has a great deal to do with "attention." If everything in this room were to be precisely the same we would not pay attention to one thing more than another; we would pay attention to nothing at all, for attention means the concentration of our minds upon a limited number of things to the exclusion of others. On the other hand, if we see two things greatly contrasted one with the other we will notice them. They will attract our attention. Contrast, therefore, strikes at the root of attention and attention at the root of memory.

These three principles—similarity, contiguity and contrast—must be considered as distinct and independent. Of course, they may, and do, co-operate in their action—in the cohesion as well as in the reviving of ideas. Ideas lie in the human mind, not in isolation, nor are they thrown there in a topsy-turvy, haphazard manner. They are associated with one another. Let A be a new idea, and a, b and c, ideas already in the mind: a similar to A, b opposite to A, c contiguous with A. The new idea A in taking its place among its fellows in the "great storehouse" will annex itself to a, b or c—will befriend itself with other ideas related to it by similarity, contrast or contiguity. The idea A

in taking up its abode in the mind sets vibrating the fibers Aa, Ab, or Ac. As before stated, one or all three of these principles may be at work in this attachment of the new and the old—contiguity generally accompanying each of the others. In this way the original imprints are connected together; and it is this dynamic association between the varied mental elements that forms the very basis of memory. One idea suggests another because the one is joined to the other.

Taking into consideration the linking and grouping which take place according to the natural laws of mind, we need not suppose that one cell preserves more than *one* impression or modification. Meynert estimates the number of brain-cells to be about 600,000,000. We may therefore have a good number of single impressions. But each factor enters into different combinations just as the letters of the alphabet enter into combinations in the formation of words. Each cell may be connected by radiating fibers with every other cell. The number of possible ideas may thus be very great indeed.

In memory then we go by suggestion. One idea suggests another like it, opposite to it, or associated with it. To choose between a great number of possible suggestions we must exercise our judgment and our *will*-power. The *will* must decide which of the links in the chain are to be touched—links in the chain already made by contiguous growth.

But how do we account for apparent spontaneous acts of memory? This is the product of the noiseless and unconscious workings of the mind—unconscious cerebration. In the morning we may fail to recall a

fact or an idea. In the evening it may suddenly flash upon us without giving it a thought in the mean time. In the morning we set in motion a train of thought; in the evening this force reaches its destination. So spontaneous flashes of reproduction are brought about in the usual manner—by suggestion. Mr. Oliver Wendell Holmes says:—"We wish to remember something in the course of conversation. No effort of the will can reach it; but we say, 'Wait a minute, and it will come to me,' and go on talking. Presently, perhaps some minutes later, the idea we are in search of comes all at once into the mind, delivered like a prepaid parcel laid at the door of consciousness, like a foundling in a basket. How it came there we know not. The mind must be at work, groping and feeling for it in the dark; it cannot have come of itself. Yet, all the while, our consciousness, *so far as we are conscious of our consciousness*, was busy with other thoughts."

Having thus given a brief sketch of the general scope and province of the three laws, let us proceed to consider them more specifically.

EXAMINATION PAPER.

1. What are the three laws of suggestion? Give the derivation of the terms.

2. Give reasons for considering "similarity," and "contrast," as distinct principles of mind.

3. "One touch of nature makes the whole world kin." What principle underlies this statement?

4. Give an example where the mind is governed by analogy unaided by contiguity.

5. Does contrast seem to have anything to do with attention?

6. How do you account for spontaneous acts of memory?

7. What two principles are implied in the expression "state of mind"?

8. What law underlies classification into genera and species?

9. Show the inadequacy of contiguity to account for all that is included in the word "Memory."

10. Write out a short sketch of the three laws, showing the distinction between them and how they co-operate.

LESSON III.

SUBDIVISIONS AND EXAMPLES OF THE THREE LAWS.

(This lesson must be thoroughly mastered.)

I. SIMILARITY.—This law may be divided into two main classes—similarity in *meaning* and in *sound*.

1. Similarity in meaning may be subdivided into:—

(*a*). *Similarity proper.*—All words that mean almost the same—that convey the same idea—that are synonymous—are included under this heading.

A synonym is a word which has the same or nearly the same meaning as another word in the language. There are but few true synonyms in the English language. *Begin* and *commence* seem to mean precisely the same. But such examples are exceedingly rare; for if there are two words meaning the same, one will become obsolete or will change its meaning. A living language is continually undergoing a change. Most of the following synonyms express different sides of the same idea:—

Greek.	*Latin.*	*Latin*	*English*
Analogy,	correspondence.	Cascade,	waterfall.
elliptical,	oval.	conversation,	talk.
phenomenon,	appearance.	oblivion,	forgetfulness.
sphere,	globe.	permanent,	lasting.
sympathy,	compassion.	predict,	foretell.

A hearty grasp of the hand means more than a cordial shake. Wretched is much more expressive than miserable.

The relation then between "wretched" and "miser-

able" is that of similarity proper. It would be well to notice that several *Figures of speech* are founded on this law of analogy:—

The *Simile* is a comparison and is based upon the likeness of the qualities to which attention is directed. "The warrior fought like a lion." There is a likeness between the "warrior" and the "lion"—both are brave.

The *Metaphor* also is founded on fancied, if not real identity. "A day dark with fate." "Darkness" is properly attributed to the "night." Here it is applied to the "day." Night for the time being is substituted for day.

"To the upright there arises light in darkness." This means "a good man enjoys comfort even in trouble." Light is here identified with comfort and darkness with adversity.

Personification consists in attributing life to things without life. Shelley makes the cloud to say—"I am the *daughter* of earth and water."

Allegory is very well exemplified in the Pilgrim's Progress. Here one subject is selected and treated in such a manner as to suggest another.

(*b*) *Concrete and Abstract.*—The concrete name is the name of a thing. The abstract is the name of a quality, attribute or circumstance of a thing. The word abstract means *drawn from.* "Snow" is the name of a thing consisting of different attributes and is therefore concrete—the qualities *grow together* making up a "whole." "Whiteness" is the name of a quality of the snow—a quality *drawn or abstracted from* the other qualities and apparently considered by itself. Of course a quality has no existence *per se*—no physical existence

apart from the matter which possesses it. Indeed it is doubtful whether the quality has existence even in thought apart from the object in which it is inherent. Can we think of "humanity" apart from "man"—of "redness" apart from something which is "red"? The word abstract itself is somewhat ambiguous. 1. Finding that an object possesses a number of qualities, we may be said to *abstract* one of these qualities from the others. The abstract idea is one withdrawn from the others. 2. We may turn away or abstract our regard from other qualities of the object and attend to one. Here the mind is abstracted and not the quality. This, however, is a matter of terminology. Attention to one special quality implies abstraction from the others, and *vice versa*.

EXAMPLES:—

Air—invisibility; circle—rotundity; glass—brittleness; hero—valor; iron—hardness; mountain—height; rose—redness; silver—malleability; sun—brightness; star—astronomy.

The relation between valor and hero is that of abstract and concrete. In the one case the quality "valor" is thought of by itself, in the other the same quality is considered in conjunction with the other qualities of the "hero."

It must be noticed that, strictly speaking, adjectives are concrete and not abstract. Snow is white. Here we apply the adjective "white" to "snow." The quality is not *abstracted* from the others—from the thing which possesses that quality. The attribute white is inherent in the subject snow. In other words, when we think of white we mean some white thing. The corresponding

abstract term is whiteness. The adjective is the symbol for an attribute thought of *in* the thing or subject, hence concrete: whereas the abstract term expresses a quality considered *apart* from the subject.

(*c*) *Subject and Attribute.*—The attribute if essential to the subject is sometimes called property. Man is rational. It is invariably found that man is a rational being. At least, the ability to reason is peculiar to him. Reason is inseparable from his essence—a property. On the other hand, an attribute which is accidental—easily separated from the subject without destroying its essence—is called accident. Life is sweet. It is a very common experience that life is anything but sweet. "Sweet" in this connection is an accident.

But what one person may consider essential another may look upon as accidental. Hence the classification into "subject and property" and "subject and accident" has its difficulties. The term *attribute* includes the whole field from property to accident. Subject and accident is a case of contiguity rather than of similarity.

EXAMPLES:—

Crystal—clear; feather—light; grass—green; ice—cold; lamb—gentle; metal—heavy; night—dark; sky—blue. Most parts of speech may express an attribute, especially the adjective. The adverb may express an attribute of the adjective—an attribute of an attribute.

(*d*) *Correlatives.*—There are some ideas which cannot be thought of alone. The very meaning of *father* involves the idea of *offspring*. Of course, we may at any

given time pay more attention to one than the other, but still the two ideas are inseparable. The one to which prominence is given is called *relative*, the other its *correlative*. Each example of correlatives is also an example of contiguity, for the simple reason that the relative and its correlative have been so often *thought of together* irrespective of the fact that the one involves the other in thought—that the existence of one implies the other.

EXAMPLES:—

Bridegroom—bride; creditor—debtor; giver—receiver; host—guest; king—subject; landlord—tenant; majority—minority; master—servant; superior—inferior; town—country. There is a sense in which the relative and its correlative may be contrasted. Here, then, we have an example of a pair of words the relation between which may be classified under any of the three laws. The relation between bridegroom and bride is that of similarity, contrast or contiguity—one or all three.

(*c*) *Genus and Species.*—Genus is a class, and species a subdivision of that class. This classification is made by abstraction—by separating the points of agreement from the points of difference. Taking two individuals, David and William, we notice some marks common to both—both have reasoning power. We, therefore, call each a "*man*." The idea of "man" is now compared with other ideas, say a "sheep." Both are found to be *mammalia*. Mammalia agree with insects in having life and sensation. Both are thus *animals*. To put the above in a tabular form we have:

Genus.	*Species.*
(Man.)	(David.)
mammalia	man, sheep
animal	mammalia, insects
living object	animal, plant
object	living object, table

Individuals, as David, this book, that table, are neither genus nor species. The relation between "man" and "David" is that of a "class" and "individual." The highest genus—"object" in this case—is never a species. Man (in the above example) is called lowest species because the class contains only individuals—no subordinate classes. Mammalia, animal, and living object are alternately genera and species. The same class of objects may be both genus and species at the same time. Divided into sub-classes it is a genus. Forming a part of a larger class it is a species. The terms are relative. One implies the other.

EXAMPLES:—

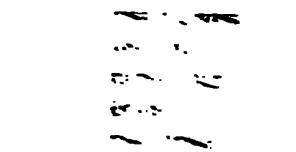
Fruit—apple; geometrical figure—triangle; language—English; metal—iron; quadruped—horse.

It must be understood that all objects possessing a certain attribute may be looked upon as a genus or class. This attribute is called the principle or ground of division. Any class of objects narrower in its scope than the genus, but still possessing that attribute, may be called a species of that genus. Thus, the name quadruped is given to all animals having *four feet*. Taking the *possession of four feet* as a basis of division we find that the *horse* may be admitted into the num-

ber, for the horse has four legs; and the term horse is applicable to fewer number of animals than the term quadruped. The species (horse) has more qualities, but is applicable to fewer objects than the genus (quadruped). All the qualities which the quadruped need have are life, sensation, and four feet. That is all that is *necessarily* implied in the idea quadruped animal; consequently the class includes good many animals besides the horse. Our conception of horse, however, involves more attributes than life, sensation and four feet. Thus the genus is richer in its scope but poorer in its meaning than the species.

All concrete general names are open to division into genus and species. The word *general* or common is used as distinguished from singular or individual. A singular term denotes a single thing. All proper names belong to this class. Abstract nouns are names of qualities, and, therefore, hardly capable of subdivision. But as there are only few terms which are *strictly* abstract, the student may find it convenient to extend this classification even to abstractions. "Envy is passion" means "envy is some passion" = "envy is a kind of passion." Here passion is predicated of envy. There are other kinds of passion besides envy. Passion is the genus, envy the species. The genus "passion" is a mark or attribute which always accompanies the subject "envy," but passion belongs to other subjects equally as well.

(*f*) *Cognate Species.*—Species of the *same* genus may be called cognate or co-ordinate. This division need not be carried out with the accuracy of the naturalist. All that is necessary to see is that the subclasses belong to the same class.



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EXAMPLES:—

Carriage—wheel; coat—sleeve; chair—leg; elephant—trunk; engine—boiler; gun—barrel; hand—finger; man—limbs; sword—blade; word—letter.

2. *Similarity in sound*—two words having a sound in common. There are no subdivisions under this heading, although the different groups given below follow certain rules. All the student has to notice is that there are two syllables the same or nearly the same in sound.

Hire—higher; flour—flower; loose—lose; juice—Jews; deference—difference; sheep—ship; ail—hail; arbor—harbor; boa—boar; awe—or; accept—except; salary—celery.

II. CONTRAST.—All terms that imply opposition come under this principle. 1. *Negatives or contradictories.*—The positive term implies the existence of a quality, while the corresponding negative signifies the absence of that quality. There are in this case but two alternatives—either the quality is present or not present.

Positive—negative:—

Equal—unequal; gratitude—ingratitude; happiness—unhappiness; is—is not; light—darkness; metallic—non-metallic; one—none; politeness—impoliteness; sincerity—insincerity; yes—no.

2. *Contraries or Opposites.*—When degree or quality is concerned the terms which express the opposition may be called *opposites*. In this case a medium is possible.

Aged—young; easy—difficult; economy—extravagance; greater—less; prosperity—adversity; transpar-

ent—opaque; virtue—vice; wise—wicked; wealthy—poor; warm—frozen.

Water may be neither hot nor cold—lukewarm. Cold is thus the opposite of hot rather than its negative.

The student will notice that there is a difference between contradictory and contrary. The principle of contradictory is that the same attribute cannot be, at the same time, affirmed and denied of the same subject. *Wise* and *unwise* are *contradictory* because it would be impossible to think an act both wise and unwise. That would be *contradiction* in terms—unthinkable. *Wise* and *wicked*, on the other hand, are contrary, because it is known by experience and not by the *very form of expression* that they cannot belong to the same object.

It is hardly necessary to remark that we contrast things of the *same class* but having marked feature of difference. We cannot contrast "sea" and "dog," but we can "sea" and "land." Palace and cottage may be contrasted, for both, though different, belong to the same class—"dwelling house."

Contradiction is opposition *par excellence*. One term is the negative of the other. The one possesses a certain quality, the other does not. It is a matter of negation. Qualities merely different can exist in the same subject, but contradictories cannot.

The reader need not be discouraged if he or she does not clearly understand the difference between contradictory and contrary. In dealing with the law of contrast all that is essential is to notice the opposition between the two terms under consideration.

The existence as well as the power of this law is shown by its frequent use in literature. Human nature loves

variety and change. This shows how the principle is rooted in our very nature. As a figure of speech it is forcible and agreeable if judiciously employed.

Antithesis.—Augustus in his appeal says :—"Listen, *young* men, to an *old* man to whom *old* men were glad to listen when he was *young*." We say that an author's style ranges from *gay* to *grave*, from *lively* to *severe*.

Epigrams.—Antitheses, if sufficiently sharp, are sometimes called epigrams. "The *child* is father to the *man*." Little reflection will reveal to us that there is, in the above sentence, no contradiction but real sequence. We are children before we are men.

Hyperbole.—This figure is a form of exaggeration. Milton says of Satan :—"Hell grew darker at his frown" The frown is made out to be such that even hell became darker under its influence—hell which is painted as already dark enough.

Irony.—Here a satire is more or less hidden under the garb of compliment. The contrast is between the underlying satire and the apparent compliment.

III. CONTIGUITY.—We see things together, and hear sounds together. We receive different impressions through different organs at the same or nearly the same time. These impressions cohere in such a manner that one will revive another. We may not be conscious of the similarity or the contrast between them, but the fact that we have experienced them together is enough to bring about the cohesion. Contiguity is the law of *experience*. It may be divided into several classes :—

1. *Cause and Effect.*—The cause of an event is the circumstance or circumstances which *must* precede

that event—the invariable antecedent. Locke says that a cause is a substance exerting its power into act to make one thing begin to be. This law is constituted by the action of the individuals subject to it —by the uniform recurrence of antecedents and consequents. Physical law is simply an invariableness of sequence. It can be contradicted, for it involves no necessity of thought but only a fact of experience. The law of tides is got from experience and can be thought reversed.

The observance of such a law constitutes it, and the violation of it would destroy it. There is no necessary connection between the cause and the effect. That wax melts on the application of heat is necessary only on the ground of *observation*—simply because the melting always follows the heating. But *always* is not identical with *must*. Before experience we could not tell from our knowledge of heat and wax separately that the heated wax would melt. If the effect were necessarily implied in the cause we must be able to predict the effect just as we can predict a conclusion from certain premises. There is therefore no logical necessity in physical sequence. The necessity, however, is at least *hypothetical*. So long as things are constituted as they are—so long as they stand in the given relation in which we find them—similar effects will follow similar causes. This is a necessity laid upon things in virtue of their relations to each other—in virtue of the atomic constitution of the world. Given these atoms, these properties and their possibilities, effects follow as in our experience. It must be understood that an event may have, and generally has, more than one cause. What we call "cause" is simply the most

apparent of the various causes—the last factor of the complex cause. The application of a match to powder is only the immediate cause of an explosion; but the match would be useless unless the powder was such as would explode and without the presence of air as a medium of combustion and sound.

EXAMPLES:—

Application of match to gunpowder—explosion; attraction of sun and moon—tide; cold—contraction; fire—burning; gravitation—elliptical course of the planets; heat—melting; intervention of moon between earth and sun—solar eclipse.

As closely allied to cause and effect we may consider the following:—

(*a*) *Means or instrument and end*—Medicine—health; upright life—happiness.

(*b*) *Actor and action*—Man—talks; horse—runs.

(*c*) *Actor and implement*—Player—football;—gardener—spade.

(*d*) *Occupant and place*—Slumberer—bed; prisoner—jail.

(*e*) *Action and object*—Kick—ball; wash—face.

(*f*) *Place and action*—Parlor—entertain; field—plowing.

This classification may be extended if the student thinks it advisable.

2. *Habitual Associates.*—Correlatives have been classified under the law of similarity. There are other words which are very often associated together. These, for want of a better term, we shall call "*Habitual Associates.*"

Bread — butter; hunger — food; hammer — nails;

lightning—thunder; pen—ink; pipe—tobacco; shovel—tongs; winter—overcoat.

3. *Testimony*—a declaration of a witness.

(*a*) Historical facts:—Hugh Miller—geology; Jôb—patience; Gladstone—the Irish question; Gordon—Khartoom; Harvey—discovery of the circulation of the blood; Washington—Declaration of Independence.

Jôb and patience cannot be considered as a case of concrete and abstract or subject and attribute, for Jôb is a mere name having no meaning—a proper name. There may be a reason why such and such a name was originally given, but that reason is soon lost sight of. The name Longfellow may have been originally given to a very tall person, but Longfellow of the present day may be very short—a name as a name has no signification.

Examples under this heading are very numerous, for so much of our knowledge is due to history.

(*b*) Mythology and tradition:—

Æsop—fables; Cyclops—one eye; Helen—Troy; Jupiter—Olympus; tailor—ninth part of a man; Venus—beauty.

4. *Geographical and Topographical Facts.*—Arabia—Mecca; Belgium—Waterloo; Egypt—pyramids; Italy—Rubicon; Rome—seven hills; Greece—"the pleasant mead of Marathon."

The plain of Marathon, on which a memorable battle of the same name was fought, is described by Aristophanes as "The pleasant mead of Marathon."

Waterloo may be considered a part of Belgium, but that does not interfere with the fact that the two have been thought of contiguously.

5. *Subject and Accident.*—This heading is given in case

a student may think it advisable to adopt it. An accident is a quality which belongs to a subject but which can easily be separated from that subject. It is a pure accident that Washington was an American and that he was called George. We may easily conceive him to be born elsewhere and to be called by another name.

George and Washington may be looked upon as a case of Habitual Associates.

6. *Thought and language—words and things signified—native word and foreign word.*

(*Optional.*)

Articulation is the center of many combinations. When it coheres with sound the result is spoken language, with sight, written language. It is thus the medium of relation between sight and sound, each of which will call up the proper articulation. Its cohesion with touch enables us to write; while its relation with manual movements assisted by sight gives the articulate speech of the deaf.

The cohesion between objects or ideas and sound is direct or primary, but it is not so with sight. Sound will readily suggest the object signified without the aid even of articulation. But the written symbol will not do so, at least at first. Before the child can attach any meaning to a word he must pronounce it. Illiterate people invariably move their lips in reading. It is only by practice that we succeed in forming an indirect association between the written characters and the object signified. And indeed it is doubtful whether we ever reach a point where articulation is wholly done away with—whether there is not always what Bain calls "internal articulation."

(a) Object signified—(b) articulation—(c) written or printed word.

A is associated with *b*, and *b* with *c*, and by custom *a* becomes associated with *c*.

The linking of the native word to the foreign word is also brought about by contiguity. Of this we shall speak further on.

Figures of speech founded on contiguity:—

Autonomasia rests upon historical facts. It usually consists in the selection of an individual to represent a whole class. The force of it depends upon the readiness with which that individual will suggest the class to which it belongs. We talk of a wealthy man as a Crœsus; of an orator as a Demosthenes.

Synecdoche.—This is a name given to that form of speech which takes the part for the whole, the genus for the species, or the attribute for the thing which possesses that attribute. It consists in the concentration of the mind for the time being upon the particular feature in which we are interested. We speak of a mercantile establishment employing so many *hands*—selecting the *hand* to represent the individual or the part to represent the whole, because it is to the hand that the mind is specially directed.

Metonymy is the substitution of cause for effect or *vice versa*. "I bask in the sun." The sun is the cause of the light and heat. It is in the latter that we bask—in the result, not in the cause.

Examination Paper.

1. What do you mean by a "synonym"?

2. State clearly the difference between "abstract" and "concrete." Are adjectives abstract?

3. How do you distinguish "abstract quality" from "attribute"?

4. How do you distinguish "genus and species" from "whole and part"?

5. What do you mean by "contiguity"?

6. Write out a table of the laws of suggestion.

LESSON IV.

THE FLOWER AND MUSE SERIES.

So far we have been theorizing. The practice comes next.

"I have not yet discovered any better method of expounding the laws of association than by combining two arrangements: first, the systematic view of the mental elements, as they come associated together; an second, the application of these products to our various utilities."—*Bain.*

The series given in this little volume are to be learned by relation—by getting hold of each link in the chain. Each word is already associated with its neighbor. We have to do only with the *conscious* reviving of previous mind-experience. The statement is often made, "But there are so many words connected with each of the words in the series. How am I to know which to take?" True, each idea is connected with good many other ideas. But selecting one quality of an object and giving prominence to that quality by conscious thought, why, in reciting the series, should I give another quality? Having once expressed your thoughts by certain words, the tendency of the mind is to express the same thought, whenever it occurs, by the same words.

Each word, then, is to be tied to its neighbor by the consciousness of their similarity, contrast or contiguity. Of course, a pair of words may exemplify all three laws. All that is necessary is to see *one* of these possible relations—the one that will impress us first is most likely to be the strongest and the best.

The object in learning and reciting these series is:—

1. The mind has its fundamental principles by which it registers, retains and revives ideas, but we ought to know what these principles are and how to make the best possible use of them. This is one object of these series—to familiarize the mind with its own operations.

2. These series contain certain facts which we wish to remember and which would be somewhat difficult to commit to memory in a disconnected form. For this reason we are restricted, there being definite words which we are bound to introduce.

3. But the chief object is to strengthen the power of concentration by learning these series, the attention being directed to two ideas, and only two at a time, and by reciting them forwards and backwards *every* day for a fortnight. If at the end of that time the student finds that he can go over the series mechanically—like a machine or a parrot—let him get a new one, for doing anything automatically tends to promote mind-wandering and to encourage the very tendency which the recitation of these series is meant to cure.

Some people seem to think that committing *anything* to memory in *any* manner—figures or what not—that this will strengthen the retentive and reviving power of the mind just as the learning and reciting of a series of connected words will. This is a serious mistake. Every faculty is developed by exercise, but this exercise must be in harmony with the nature of the faculty. The action must be agreeable and not forced. The food, if it is to be assimilated and to contribute towards the well-being of an organ, must be of the right kind. The mind works by suggestion. It is natural and agreeable to go from one link of a chain to

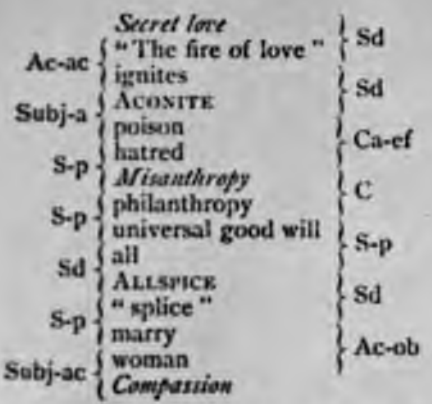
another. The mind is encouraged to be present. It is brought under the control of the will. *The habit of attention is cultivated.* Let these series then be learned by seeing the relation of similarity, contrast or contiguity between each pair of words, and let them be recited forwards and backwards once every day for a fortnight.

Abbreviations :—S-p = similarity proper. Abs-c = abstract and concrete. Subj-a = subject and attribute. Cor = correlatives. Gen-s = genus and species. Cog = cognate species. Wh-p = whole and part. S = similarity. C = contrast. Contig = contiguity. Ca-ef = cause and effect. Hab-a = habitual associates. Test = testimony. Hist = historical fact. Geo = geographical fact. Myth = mythology Subj-ac = subject and accident. Sd = similarity in sound. M-e = means and end. Ac-ac = actor and action. Ac-imp = actor and implement. Oc-pl = occupant and place. Ac-ob = action and object. Pl-ac = place and action.

The Flower Series.

The language of flowers is a subject of universal interest. The names of the flowers are given in small capitals and in alphabetical order. The meaning is given in italics.

Wh-p	Flower	Sd
	flour	
	corn	Hist
Hist	Egypt	
	ACACIA	Sd
S-p	she	
	mother	Subj-a
Gen-s	love	
	Secret love	



Compassion
animosity

ANEMONE
money

"Expectation"
peck
wheat
field

BUTTERCUP
cup
full
grateful

Ingratitude
man
flesh

CARNATION
"deep-red"
high
Atlas

Alas! for my poor heart
breast
heave
increase

CHRYSANTHEMUM
"white"
pure

Truth
God
cleave

CLOVER
"four-leaved"
leave
bemoan

Be mine
kiss
lip

COWSLIP
cow
ruminate

Pensiveness
nest
bird
crow

CROCUS
cusp*
moon
light

Cheerfulness
daft

DAFFODIL
foe
friend

Regard
garden

DAISY
"day's eye"
close
part

Farewell
well
water
nymph

DAPHNE
goddess
gods

Immortality
oblivion
forgetfulness

FORGET-ME-NOT
"be faithful"

Fidelity
wife
polygamy
Shah

FUCHSIA
refuse
wine

Taste
sweet
"rose-scented"

GERANIUM
germ
first

Preference
fence
hedge

HAWTHORN
thorn
care
"human breast"

Hope
future
hazy

HAZEL
eyes
sweetheart
quarrel

Reconciliation
"prodigal son"
youth

* Cusp = point of the crescent moon.

HYACINTH *
"killed"
sorrow
Sorrowful
joyful
fragrant

JASMINE
Minnie
girl
amiable
Amiability
"beloved"
John

JONQUIL
Jonah †
dove
"returned"
I desire a return of affection
come back

LILAC
purple
red
"hot"
First emotions of love
origin
margin

MARIGOLD
gold
lose
Grief
downfall
favorite
minion

MIGNONETTE
nettle
temper
character
Your qualities surpass your charms
charms
enamor

NARCISSUS ‡
self-love
Egotism
"I" *or* you

ORCHIS
orchestra
hall
ball
A belle
dress
rich

* Hyacinthus was a beautiful youth beloved by Apollo who killed him by a cast of his quoit. From the blood the flower of the same name is said to have sprung.

† "Jonah" means "dove."

‡ Narcissus was a beautiful youth, said to have been enamored of his own image as seen in a fountain, and to have been changed into a flower of that name.

POLYANTHUS *
"crimson"
blood
heart

The heart's mystery
drama
curtain
rose

ROSEMARY
merry
pleasure
"the pleasures of memory"

Remembrance
membrane
cover
safe

SAFFRON
front
danger
beware

Beware of excess
"take care"
take time

THYME
strong

Courage

If any of the words in this series occur in any subsequent series the student, to avoid confusion, must be aided by the context. The explanation given is meant to assist the student in finding the relation between the different pairs of words. Further than this no importance is attached to it. All that is necessary is to learn and recite the series.

THE MUSE SERIES.

The Muses were fabled goddesses who presided over Literature, Science and Art. They were nine in number, and were the reputed children of Mnemosyne, the Goddess of Memory. The order here given is alphabetical, and the name of each Muse is followed by that of the department over which she presided. The series is appropriate, interesting and useful; but it may be more difficult than the previous series, because the subject

* Rich in flowers.

and the words are not quite so familiar. If learned, let it be done thoroughly. Similarity of sound often occurs owing to the presence of so many proper names.

(Optional.)

Gen-s or Sd	Muse	Myth :
	goddess	
	Goddess of Memory	Sd
Semi-cor : or Abs-c	memory	
	mnemonics	Sd or Myth
	MNEMOSYNE *	
Ac-ac	sin	Sd
	Eve	Hist
Ac-ob	*Mother*	
	lost	S-p
Myth	calamity	
	CALLIOPE †	S-p
Instr and end	"beautiful voice".	
	speech	Subj-a
C	*Eloquence*	
	prosaic	Sd
Subj-a	*Heroic Poetry*	
	hero	Hist
Sd	Clive	
Sd	CLIO ‡	
	decline	Hist
Hist	Rome	
	History	Ac-ob
Ac-result	edit	
	errata	Sd
Sd	ERATO §	
	Erebus	Ac-ob
C	hate	
	Amatory Poetry	Ca-ef
Ac-ob	love	
	you	

* Ne-mŏs-i-nē = remembrance.

† Kal-lĭ-o-pe = beautiful voice.

‡ Clio = the proclaimer. § Er-a-to = lovely.

	you	Sd
Sd	EUTERPE *	
	terrible	Subj-a
Sd	liar	
	lyre	Cor
Gen-s or subj-a	*Lyric Poetry*	
	song	Subj-a
Sd	melodious	
	MELPOMENE †	Sd
Sd	melodrama	
	drama	Gen-s
Hist	*Tragedy*	
	Mary Queen of Scots	S-p
Sd	"Polly"	
	POLYHYMNIA ‡	Sd
Ac-ob	hymn	
	Singing	Subj-ac
C	loud	
	silent	S-p
Sd	reticence	
	Rhetoric	Subj-a
Sd	terse	
	TERPSICHORE §	Sd
C	sick	
	well	Action and manner
Gen-s	*Dancing*	
	choral dance	Sd, S-p
Hist	*Choral song*	
	Greek	Hist
Sd	Thales ‖	
	THALIA ¶	Sd
Sd	lying idle	
	Idyllic Poetry	

* Eū-ter'-pe = delightful.
† Mel-pŏm'-e-nē = songstress.
‡ Pŏl'-y-hym''ni-a = many hymns.
§ Terp-sik'-o-re = to enjoy a dance.
‖ Tha'-lez was a Greek sage and philosopher.
¶ Tha-lī'-a = luxuriant.

	Idyllic Poetry	Cor
Oc-pl	shepherd	
	country	Oc-pl or C
Hist	village	
	Comedy *	Hab-a
Sd	"Errors"	
Sd	Reign of Terror	
	URANIA †	Sd
Hist	Uranus	
	planet	Abs-c
	Astronomy	

EXAMINATION PAPER.

1. In learning the different series how many words are taken into consideration at the same time?

2. What are the uses of learning and reciting series in this manner?

3. Learning anything in any manner will strengthen the memory. Comment upon this statement.

4. Who was the Goddess of Memory?

5. Recite one of the series, as quickly as you can, both forward and backward.

* A song of mirthful character which was recited from *village to village* by strolling actors.

† Ur-a-ni-a = heavenly.

LESSON V.

THE TRANSLATION OF NUMBERS INTO WORDS.

Letters versus Figures.

By giving equivalents in letters to the nine digits and the cipher we are enabled to express numbers in words. The advantage of this is evident. The number is an *abstract* species of quality. It means nothing in particular. The mind finds difficulty in grasping it. Figures are like grains of sand that have no coherence. The word, on the other hand, is concrete. It has meaning, being a symbol for a definite thought. It is doubtful whether we can form any idea of the number *80* in the abstract, whether we must not express the abstract in the concrete and think of *80* objects. We understand what is meant by *80 horses*. The Anglo-Saxon language is concrete. It does not indulge in "*isms*." Hence its power of conveying definite meaning. In St. John's Gospel 96 per cent. of the words are pure English. Shakespeare's Henry IV., Part I., act ii. contains 91 per cent. pure English.

The majority of people know but few dates. They cannot remember numbers. For these people a system of figure equivalents will be invaluable, for then they need not remember the figures but only the word or words which express these figures.

This idea of translating the abstract figure into the concrete word is a very old one. It must be of some genuine value for it has weathered the storms of many a century.

Its origin is obscured by the mist of time. We can throw ourselves back to the times of yore, and imagine the idea dawning upon some Hebrew scholar as he contemplated the difficulty which he and his fellow men found in retaining figures. It was probably suggested to him by the habit which the Hebrews had of forming an artificial word or words from the initial letters of the different words of a phrase or sentence. It was very natural for a people, whose language had no vowels, to do this. We find traces of the same idea in our days, in such words as *Cabal* and *Vibgyor*. The former is a name given to the notorious ministry formed on the dismissal of Clarendon in the reign of Charles II. (1667). The chief members were :—Clifford, Ashley, Buckingham, Arlington and Lauderdale. The word Cabal is made of the initial letters of these names. This, however, is not the origin of the name, since the word "cabal" was in use before this time. It meant any secret committee. In like manner the word Vibgyor is got from the first letters of the names of the seven prismatic colors—violet, indigo, blue, green, yellow, orange, and red. We may safely conclude then that the idea of translating figures into consonants is a dowry of the Hebrews, and for the handing down of it to us we are greatly indebted to Bishop Beveridge and Dr. Richard Grey, Rector of Hinton in Northamptonshire. The latter published his work on memory in 1730. It was he that gave prominence to this matter in modern times. The drawback of Grey's system was that he gave value to vowels. This, as we shall presently see, was a disadvantage. The "picturing" method of Simonides became incorporated with this system of figure equivalents. The

two ideas have developed into what is called *Mnemonics*. But we must not regard the translating of figures into words as an essential part of mnemonics, the characteristic of which is story-telling and picturing. A short history of this method will be given in the appendix.

It is perfectly arbitrary, of course, what letters we select to represent the several figures, provided we always express the same figures by the same letters.

TABLE OF FIGURE EQUIVALENTS.

0	1	2	3	4	5	6	7	8	9
S (c soft) z	t (th) d	n	m	r	l.	J (g soft sh ch	k (c hard, q, x = ks or gz) g ng	f v	p b

A glance upon the table of figure equivalents will convince the student that vowels are omitted, also w, h, and y = why. The h is simply the aspirate or breathing, not possessing any full articulate sound. W and y are usually called semi-vowels, being consonants or semi-vowels when they begin a word or syllable and pure vowels in all other places. At the beginning of a word y is nearly equivalent to e—yet = ēet; w = oo—wet = ooet. In all other positions the y has precisely the same sound as i in the same position.

All vowels, then, are disregarded having no value in figures, also w, h and y, as well as all silent consonants. We have to deal only with the sounded consonants, and here we go by sound and not by sight. The basis is *sound*, which ought to be the basis of spelling in every language. It is not so, however, in the English lan-

guage. English is by no means phonetic. This is a source of great difficulty to the foreigner and even to the native. We shall therefore refer briefly to the several consonants in the order of the figures which they represent. O—Cutting the letter S into two parts and putting the concave sides together will give us O. Besides S and Z are cognates (*con* = together, *nasci* = to be born) and Z begins the word zero. In many words there is a duplication of a consonant between two vowels, but only one of these consonants is, in fluent speech, represented by articulation of the organs. This does not apply to compound words—head-dress = 1140; or to separate words—tall lady = 1551. We may here make a general statement that two consonants coming together in the same word and of the same sound have the value of one of these consonants—*one sound, one value*. Necessary = nesesary = 2004. The two consonants, however, may be quite distinct in sound. In this case each takes its value according to its sound. Accessory = aksesory = 7004. In rendezvous both the z and the s are silent.

C soft has the sound of s and is one of the superfluous letters in the English language. According to Webster C has the sound of z in sacrifice and few other words, but this is very questionable. The compound letter x = ks or gz or z. Exit = eksit = 701. Exert = egzert = 7041. At the beginning of a word x = z = 0. Xerxes = Zerksez = 04700. Czar = Zar = 04. The sibilants or hissing sounds s, z and c soft are each of them equivalent to 0.

1. The *t* resembles 1, being formed by a downward stroke; d is the cognate of t. Since t = 1 and h has no value, therefore th = 1. Although th is not exactly the

same sound as either t or d. T and d are tooth letters or dentals. When pronouncing *it* or *id* we strike the tongue against the teeth. If in sounding *it* we allow a breath to pass, the sound becomes th, so that we may call th the aspirate of t. T is silent in the terminations *ten* and *tle*. Listen = lisn = 502. D is silent in Wednesday. This is the result of the law of ease. It is easier to leave out the *d*. Some of the best English speakers retain the *d* in handkerchief. Webster considers the *d* silent in this word. Let each one follow his own taste.

2. n is formed by *two* downward strokes. N final after l and m is silent. Kiln = kil = 75. Column = kolum = 753.

3. The 3 also is represented by a symbol having the same number of downward strokes—m. It is silent when followed by n in the same syllable—mnemonical = nemonikal = 23275.

4. The letter r resembles the figure 4 inverted (ꝛ). It is the last letter in the word *four*. It is found in most languages in the corresponding word. Gr. τέσταρες. Lat. quatuor; Ger. vier; W. pedwar; Sax. feower.

5. L in the Roman notation stands for 50. Here we are dealing with units and not tens.

The letter l is often silent, especially before a final consonant. Calm = käm = 73.

6. J is a reversed 6. G soft is exactly the same sound as J; sh and ch are other sounds not unlike the g soft. J is never silent except perhaps in the word Hallelujah = 55. It is superfluous, for it has precisely the sound of g. Sometimes d borders on the sound of g soft or j. Educate = ejukate = 671. This, however,

is a matter of opinion. Each student must be guided by his own pronunciation—giving the figure value accordingly.

Ch is usually equivalent to tsh. In this case ch ought to be translated by 16. But it would hardly pay us to give it this value as it has other sounds besides tsh, such as *sh* in chaise. It is a modification, we may say, of sh, and it hardly justifies a separate value; t = ch in such words as natural = 2645. Ch is silent in yacht = yot = 1 and few others. If ch = tsh, it follows that t before ch cannot have a sound because there is a t sound in ch already. Ch = tsh, therefore (t)ch = (t)tsh. Tch in ditch has the same sound as ch in rich.

Sh is never silent. Many consonants in certain positions have the sound of sh.

(1) C = sh—Oceanic = 627; conscious = 7260.

(2) S = sh—Asiatic = 617; fuchsia = 86.

(3) T = sh—negotiate = 2761.

We see from the above how t before i is sometimes changed into sh sound, also how the sibilants before vowels become sh.

7. k inverted and reversed resembles 7. It is also the first letter in the word key, and key of a door is very much like the figure 7. This letter is silent before n in the same syllable, also after c. Knock = nock = noc = nok = 27. C and q are precisely the k in sound—both being redundant. Q is always accompanied by the u. Quiet = kwiet = 71. Before l and r, ch = k—chronic = kronik = 7427. k is a sharp or hard throat sound; g hard is the corresponding flat sound. G is silent before m and n if these letters are at the end of a word, reign = 42; also g beginning a word and followed by n—gnat = 21.

Ng represents a sound closely allied with g, which entitles the former to have the same value as the latter. Ng is really a sound intermediate between n and g. This can be felt by saying in, ing, ig consecutively. The sound of in is produced nearer the lips than ing, and ing than ig. But ng is nearer to g than to n. We may therefore give it the value of g rather than n. N before g and k (= c = q, x = ks) has often the sound of *ng*—think = thingk = 177; hunger = hung-ger = 774. The letter following the n (g or k) is not interfered with at all, but the n becomes ng.

In all such cases the student must be guided by his own pronunciation.

8. ƒ resembles 8 in shape and v is the cognate of f—the flat of f—the organs of articulation being almost in the same position. Ph usually = f—philosophy = filosofy = 8508; ph is sometimes equal to v—Stephen.

Gh is now and again = f—enough = enuf = 28. The Normans on their arrival in England considered this sound a very coarse one. Indeed it is probable they could not utter it at all. Very few English people can do so at the present day. It gives no trouble to Germans, Scotch and Welsh. This sound therefore was done away with by the Normans. The English people followed their example. It disappears in the word right and in 74 other English words. In some parts of Scotland, however, the sound is retained even to this day.

9. p is a reversed 9 and b is its cognate. P is generally silent at the beginning of a word if followed by n, s or t—pneumonia = 232; also in receipt and a few other words.

B is usually silent if preceded by m or followed by t in the same syllable—lamb = 53; debt = 11.

The English alphabet has thus been accounted for. There are 26 letters in all, but three of these are superfluous (c, q and x). This is a source of difficulty, because *every sound ought to have one symbol and only one.* Besides there are 44 sounds in our language, and only 23 (26–3) signs to represent them. This necessitates the violation of another condition of a perfect alphabet, viz.: that *every letter should have but one sound.* The fact that the English alphabet breaks these two conditions of a perfect code of symbols makes our language one of the most difficult to master.

The next step is to become familiar with the above figure equivalents. To do this let the student satisfy himself as to the reason why a certain letter should be selected to represent a certain figure. Of course it does not matter what letter means 2 provided we adhere throughout to the same letter or letters. The selection is arbitrary; but still there may be an apparent reason which serves as a guide in this arbitrary selection. After this preliminary understanding is over proceed to translate into figures the following 100 words, phrases or sentences, which express the years in the 16th century. At first the student may have to refer to the foregoing table and remarks. Before the end he will probably find that he can readily translate any word into figures—practice having made him master.

Translate into figures:

Idealist—delighted—talent—Talmud—tolerate—till late—deluged—dialect—outlived—outleaped—tall son

—too well done—too well known—tollman—tellurian—do well alone—delusion—till gone—telephone—dull pain—idealism—told him—Italian hymn—tell mamma—delirium—it will hail him—it will show him—thy welcome—to leave him—a dull poem. Delusory—dilatory—outlinear—tell more—dull hearer—dull lawyer—theologer—they will agree—delivery—to labor. Tell us all—dilly-dally—toll a knell—tell him all—tellural—I hate a lie holily—whittle shawl—tellingly—doleful—delible. Tell us each—doltish—the lion show—Talmage—too large—teleology—tell a judge—daily cash—they haul a fish—the whole page. Utilizing—athletic—head leaning—they will make—tailoring—it will leak—theologic—the whole cake—delving—a dull book. Delusive—told of—oddly enough—they will move—they will rive—hotel life—tall sheaf—tall coif—deal five—they will puff. Tailsoup—telotype—to line up—to limp—tulle wrap—they will elope—edileship—it will keep—a tall fop—a doll-baby. Deltas—idleness—talmas—dollars—day lilies—delicious—delicacy—outlives—tulips—it shows us.

Each student can examine himself if he writes his translation of each word or phrase and see if he has every year from 1501–1600, both inclusive. In the above arrangement a certain order is observed. This the student must find out.

We are now in a position to begin the practice of translating figures into words. The following are the dates of accession of the kings and queens of England from Egbert to Victoria. Let these be expressed in words in order to get the necessary practice. The best way to do this is to select the consonants representing

the figures first, and then fill in with vowels or vowels and silent consonants—with any letter which has no value in figures according to the table already given. Thus, Alfred the Great came to the throne in 871. 8 = f or v or equivalent in sound ; 7 = k or g hard or ng ; 1 = d or t.

We must select one of the consonants expressing 8, one of those representing 7 and one expressing 1. Then a word, phrase or sentence must be made embodying these sounds. We are at liberty to put in as many vowels as we like, besides silent consonants and w, h, or y.

FaGgeT or *VaCuiTy* = 871.

827, 836, 856, 860, 866, 871, 901, 924, 941, 946, 955, 959, 975, 978, 1013, 1014, 1016, 1035, 1040, 1042, 1066, 1087, 1100, 1135, 1154, 1189, 1199, 1216, 1272, 1307, 1327, 1377, 1399, 1413, 1422, 1461, 1483, 1485, 1509, 1547, 1553, 1558, 1603, 1625, 1649, 1660, 1685, 1689, 1694, 1702, 1714, 1727, 1760, 1820, 1830, 1837.

"School and College History of England," by J. C. Curtis, B.A., is taken as authority for above dates. Mr Curtis has been most painstaking in his compilation of dates Let each student, however, follow any authority he chooses. The point is the actual translation of the dates into words for the sake of practice. Let no one fail to do this exercise.

Examination Paper.

1. Can you give any reason why the majority of people find difficulty in remembering numbers ?

2. What plan has been adopted to overcome this difficulty ?

3. In the translation of words into figures what is the basis—*the one rule*—upon which we proceed?

4. Translate into figures—accidentally, diaphragm, hiccough, no sanction, quiescent. Why should t be silent before ch?

5. What consonants often take the sound of sh? Give a general rule as to this change.

6. What method do you adopt in translating numbers into words?

LESSON VI.

(Optional.)

THE AMERICAN STATE SERIES.

(To be learned by relation and recited once a day for a fortnight forward and backward.)

THE following facts are attended to in this Series:

1. The names of 13 original States are arranged according to area – the largest coming first. These, of course, made up the Union formed on the "Declaration of Independence" in 1776.

2. The other States are given in the order of their admission into the Union.

3. The names of the States are printed in large capitals

4. The name of each State is followed by that of its capital—printed in small capitals

5. The State motto when given is printed in thick type.

6. The dates of admission are expressed by words in italics. Three States were admitted at the end of last century; all the others in this century. Thus the first two figures of the date may be, with advantage, left out.

7. The Territories also are arranged according to area, with the exception of Alaska.

In learning this series let the student make a free use of an atlas.

Capital
government
king
George
GEORGIA
ATLANTA
Atlantic
North German Line
NORTH CAROLINA
line of soldiers
rally
RALEIGH
Levite
Gothamite
NEW YORK
busy
all
ALBANY
"bonny"
excellent
Excelsior
"higher"
pen *
PENNSYLVANIA
"Sir Harry Vane"
HARRISBURG
burglary
vice
virtue
Virtue, liberty and independence
"virgin liberty"
VIRGINIA
gin
good
rich
RICHMOND
"le monde"
world
"world without end"
always
Sic semper tyrannis †
"ever so"
south
SOUTH CAROLINA
carol
coo
dove
"Columba" ‡
COLUMBIA
"gem of the ocean"
"Annie is a gem"
Animis opibusque parati §
"in mind"
in love
"Highland Mary"
MARYLAND
Mary Anne

* Gaelic "Ben" = mountain. Welsh "pen" = head.
† Semper = always. "Ever so to tyrants."
‡ Lat. Columba (ſ)ꝛ= dove.
§ Prepared in mind and resources.

Queen Anne
ANNAPOLIS*
city
advancing
crescent
Crescite et multipli- grow **[cumini**
old
new
NEW HAMPSHIRE
shire
county
court
CONCORD
discord
jars
NEW JERSEY
cows
house
rent
TRENTON
lenten
mass
MASSACHUSETTS
"massa"
"boss"
BOSTON
sea port
on sea

Ense petit placidam sub libertate subject **[quietem†**
cold
caught
caught in a net
CONNECTICUT
"cut to the heart"
HARTFORD
ford
pass
transfer
Qui transtulit sustilit **[net‡**
foggy
delta
DELAWARE
DOVER
driver
rode
RHODE ISLAND
land
"promised"
PROVIDENCE
God
Hope
soap
vermin

* Annapolis = city of Anne.
† With the sword she seeks quiet peace under liberty.
‡ He who transplanted, still sustains.

VERMONT
MONTPELIER
appeal
Parliament
Home Rule
pat * (91)
pattern
tuck

KENTUCKY
thorough-bred
worth many a franc
FRANKFORT
fort
strong
United we stand, divided we fall
fall
pain (92)
pleasure
lawn-tennis

TENNESSEE
nest
rocks
NASHVILLE †
village
page (96)
letter
O

OHIO
high
column
COLUMBUS
'bus
horse
neigh (2)
lose a partner

LOUISIANA
"Red River"
"red"
BATON ROUGE
button up
adjust
Justice, union and confidence
den (12)
lion
India

INDIANA
INDIANAPOLIS
police
drill
teach (16)
girls
misses

MISSISSIPPI
river
cross
army

* Pat = (17)91. Vermont was the first State admitted to the Union after the adoption of the Constitution of 1787.

† Nashville is called "city of rocks."

JACKSON *
son
child
talk (17)
lungs
disease
ill
ILLINOIS
in
bed
spring
SPRINGFIELD
field
battle
din
deaf (18)
ears
head
supreme
"Allah" †
ALABAMA
banana
eat
gum
MONTGOMERY
mountain
top (19)
bottom
ocean
MAIN(E)
danger
awe
august
AUGUSTA
gust of wind
rig the ship
Dirigo ‡
go
run
news (20)
bad
coin
sou
MISSOURI
revoke
President
Thomas Jefferson
JEFFERSON CITY
besiege
sally
Salus populi suprema est lex §
highest
note (21)
bank
saving

* Jackson was a well-known general in the service of the Confederate States in the American civil war.

† Allah = Arabic name for the Supreme Being.

‡ Dirigo = I guide.

§ The welfare of the people is the supreme law.

ark
ARKANSAS *
I can sew a little
LITTLE ROCK
ship
wreck
Regnant populi
pop the question
match (36)
fire
engine
machine
MICHIGAN
physician
lancing
LANSING
sing
choir
Si quæris peninsulam amœnam circum-
island [**spice** †
water
muggy (37)
florid
FLORIDA
delightful climate
invalids
tallow-faced
TALLAHASSEE
has he left?
railway (45)
fare
taxes
TEXAS
text
divine
St. Augustine
AUSTIN
tin-foil
sheet
roll (45)
away
awa
IOWA
"I owe you"
demand
DES MOINES
moan
wound
fight
Our liberty we prize, and our rights we will main-
win [**tain**
reach (46)
tree ‡
knowledge
wis

* Ark'-an-sâ.

† If you seek a beautiful peninsula, behold it here.

‡ "Lest, therefore, now his bolder hand
Reach also of the tree of life and eat."—MILTON.

WISCONSIN
MADISON
madness
rough (48)
work
mining
CALIFORNIA
Caliph *
"sacre"
SACRAMENTO
memento
for your sake
Eureka
"I have found"
gold
spend
less (50)
diminish
MINNESOTA
sought after
persecute
ST. PAUL
heaven
star
L'étoile du nord †
toil
life (58)
eastern
orient

OREGON
gone
sailed
SALEM
holy
angel
wings
Alis volat propriis ‡
she flies
elope (59)
come back
can't come
KANSAS
canned sauce
piquant
TOPEKA
topic
address
Ad astra per aspera §
straight
shoot (61)
"wild west"
WEST VIRGINIA
sun set
revolution of the earth
wheel
WHEELING
"all round"
scholar

* Caliph = successor of Mohammed.
† The star of the north.
‡ She flies with her own wings
§ To the stars through difficulties.

Montaigne
Montani semper li-
vesper [**beri** *
evening
curfew bell
chime (63)
strike
clock
Geneva
NEVADA †
silver
harness
carriage
CARSON CITY
garrison
protect
shelter
shower (64)
cloud
" nebula "‡
NEBRASKA
brass key
chain
link
LINCOLN
lamented
tears
cheek (67)
neck
collar
COLORADO
dodo
bird
dense air
DENVER
very much
nothing
Nil sine numine §
sinecure
cash (76)
robber
dacoit
DAKOTA ‖
America
Yankee
YANKTON
Canton
Switzerland
Rocky Mountains
MONTANA ‖
mount
wooden horse
Helen ¶

* Mountaineers are always freemen.

† Nevada has the richest silver mines in the world.

‡ Lat. nebula (f) = cloud.

§ Nothing without God. ‖ Territories.

¶ Helen, the wife of Menelaus, was carried off to Troy by Paris, son of Priam. She thus became the cause of the Trojan war. By the advice of Ulysses a wooden horse was built. Inside this horse

HELENA
St. Helena
Saint
"Mexitli"*

NEW MEXICO†
mix
Xmas pudding
Santa Claus

SANTA FÉ
au fait
expert
increases in rapidity
Creseit eundo‡
sit in doors
arisen

ARIZONA†
zone
waistcoat
pressed coat

PRESCOTT
cot
home
why roaming?

WYOMING†
Wye§
shy in a stone

CHEYENNE
enemy
arms
Cedant arma togae‖
toga
Roman
Ides

IDAHO†
tally-ho
wood
"le bois"

BOISE CITY
boys
climb
yew

UTAH†
Mormonism
Brigham Young
ham

SALT LAKE CITY

---

the hero and his companions concealed themselves, and were thus admitted into the city. In the dead of night they rushed out and opened the gates to their comrades, and Troy sinks in ashes. (1184 B.C.)

* Mexitli was the Aztec "God of War," from whom the name of Mexico is derived.

† Territories.

‡ It increases by going.

§ The Wye is a river.

‖ Let arms yield to the toga. Let military authority yield to the civil power.

"City of magnificent distance" *	aboriginal
WASHINGTON †	INDIAN †
Senate	Talookah ‡
"Council of the Gods"	TAHLEQUAH
Olympus	quart of beer
OLYMPIA	drunkard
Greece	alas!
ancient	ALASKA †
	SITKA

In the above series there are so many words which are almost meaningless to us; hence the frequent use of *sound*. This makes the learning of the series somewhat difficult, especially for those who do not receive vivid impressions through the sense of hearing.

Any errors as to dates of admission or capitals the student may rectify. Singularly enough authorities differ as to these points. If there are any pairs of words between which the student cannot see any relation, let these words be substituted by others which have relation.

The United States include 38 States, 10 Territories, and the District of Columbia.

If the same words occur in this series as in any of the others, the student must be guided by the context.

EXAMINATION PAPER.

1. What are the capitals of New York, Virginia, Connecticut, Kentucky, Illinois, Arkansas, Iowa and Utah?

* The city of Washington is sometimes called the "city of magnificent distance."

† Territories.

‡ Talookah is a district in India, the revenues of which are under the management of Talookdar.

2. Give the mottoes of—New York, Maine, Missouri, Arkansas, Iowa, West Virginia and Colorado.

3. Which was the first, and which the last, State admitted into the Union?

4. What is the relation between—Bonny and excellent, city and advancing, in and bed, sing and choir, spend and less, Dakota and America?

5. Recite the series forward and backward without any mind-wandering and time yourself.

LESSON VII.

(This lesson must be slowly and carefully read and reflected upon.)

So far we have been dealing with words between which there is a relation *already formed*. We have been taking stock of what we possess and have been making use of this possession for the purpose of training the concentrating power of the mind. The next question is—"How are we to make use of associations already formed in the acquisitions of new associations?" Can we in any way assist the mind to form the relation of contiguity between two disconnected ideas? If one of these ideas is to suggest the other, there must be a cohesion between them. The older we become the more callous the brain becomes. The connecting of the new to the old becomes difficult. The transmitting of force from one cell to another along the connecting fibers is retarded by the reluctance of these fibers to vibrate. Intelligence in the child is in its embryo, but the power to associate together by experience and without understanding seems to make up for this undevelopment. When we grow older we get wiser, but less able to acquire knowledge by brute force and without understanding. The more intelligent we become the more intelligence we need in adding to our stock of knowledge. In connecting the disconnected the mind must consciously or unconsciously see some relation between them. It must see the reason why the ideas in question should cohere. It must go from one to the other by intervening steps. The two apparently disconnected ideas are the first and last link of a chain.

This is put very clearly by Thos. Hobbes, who may be looked upon as the reviver of the Aristotelian doctrine of "mental association."

"In a company in which the conversation turned on the civil war, what could be more impertinent than for a person to ask abruptly what was the value of a Roman denarius? On a little reflection, however, I was easily able to trace the train of thought which suggested the question; for the original subject of discourse naturally introduced the history of the king, and of the treachery of those who surrendered his person to his enemies: this again introduced the treachery of Judas Iscariot, and the sum of money which he received for his reward. And all this train of ideas passed through the mind of the speaker in a twinkling in consequence of the velocity of thought." Mr. Stewart adds, in relation to this anecdote, "It is by no means probable, that if the speaker had been interrogated about the connection of ideas which led him aside from the original topic of discourse, he would have found himself, at first, at a loss for an answer."

Archbishop Thomson expresses the same idea in the following passage: "The acts of the mind are so quick, so numerous, so complex, that they are not easy to note and describe, although we daily perform them, and that without serious mistake. Logicians have generally erred on the side of underrating the number both of the mental processes themselves, and of the particular acts which go to the attainment of any judgment or conception. As the act of standing erect, so simple apparently, calls into operation a numerous array of muscles, by means of which the body perpetually sways and adjusts itself, without conscious effort, *so we may believe*

that the mind goes through acts, which from long practice scarcely awaken her own attention, much less the sense of pain and effort, yet which involve a great number of subordinate acts depending on distinct principles. And as it takes the physiologist many pages of explanation to analyze a posture which a three-years' child assumes and retains without difficulty, so the logician seems to spend too many words upon the rules of thinking, since all men, from the statesman to the clown, are able to think whether they have learned rules or not. To show that the complexity we speak of really belongs to thoughts apparently very simple, we may examine an example. When Captain Head was traveling across the Pampas of South America, his guide one day suddenly stopped him, and, pointing high into the air, cried out, 'A lion!' Surprised at such an exclamation, accompanied with such an act, he turned up his eyes, and with difficulty perceived at an immeasurable height a flight of condors soaring in circles in a particular spot. Beneath this spot, far out of sight of himself or guide, lay the carcass of a horse, and over that carcass stood, as the guide well knew, a lion, whom the condors were eyeing with envy from their airy height. The signal of the birds was to him what the sight of the lion alone would have been to the traveler, a full assurance of its existence. Here was an act of thought which cost the thinker no trouble, which was as easy to him as to cast his eyes upward, yet which from us, unaccustomed to the subject, would require many steps and some labor. The sight of the condors convinced him that there was some carcass or other; but as they kept wheeling far above it instead of swooping down to their feast, he guessed that some

beast had anticipated them. Was it a dog or a jackal? No; the condors would not fear to drive away, or share with, either; it must be some large beast; and as lions abounded, or had been seen in the neighborhood, he concluded that one was here. These steps of thought at least, and probably many more, rushed through his mind with the proverbial swiftness of thought, but they were summed up in the words, 'a lion.' Daily and hourly we run through similar or more complicated trains of thinking, *with no more consciousness of the several links* than the organ player has of each note he strikes in a rapid passage of full harmony."

The intermediate steps between "civil war" and "Roman denarius" * are :—Civil war—*king, treachery, Judas Iscariot, money.*—Roman denarius. The bridge between the two extremities is somewhat long, but that makes no material difference, as thought travels with great rapidity. It has been calculated that an act of discernment may be accomplished in about $\frac{1}{50}$ of a second (= 0".02). So great the rapidity is that we talk about "the infinite speed of thought."

The linking together—the passing through the different links in going from one idea to another is acknowledged by Spinoza when he talks about "concatenation."

Accordingly we have in memory a going back—a retrogressive movement. We start from our present state of mind—for we have no other starting point—and go back along a series of already connected terms. It is in this way that we are able to locate. Reference to this point has been already made in speaking of the memory element "Localization in time."

* Denarius = 7½ = 15 cents about.

Thus the natural tendency of the mind is to concatenate. We may assist it by the conscious finding of intervening links, the first and last being given.

Let us return to the example already given in order to get a clear understanding—once for all—of the object of intermediates. "Civil war" and "Roman denarius" may be called "extremes" and the links coming between may be called "intermediates"—four in number in this case. To this method many objections will be brought forward by those who have not put it to the test.

(1) One will ask "What possible advantage can it be to marshal forth four words in order to form a relation between two?" and will look upon the whole matter as a piece of complication.

(2) Another will complain that he forgets the intermediates. (3) While a third will say that it takes a great deal of rummaging to find them. All these difficulties arise from want of understanding as to the workings of the mind as well as the object in view. The end is to form the relation of contiguity between the two extremes. The means to this end is the finding of intermediates—of a bridge to go from one to the other. If the intermediates have done their work, if they have left their trace, if they have aided us in our endeavor to form a strong and vivid relation between the extremes, it does not matter if we do forget them. Indeed it is necessary that they should be kept in the background. *They are means to an end.* The finding of these intervening links is a matter of revival—of recalling what we have either directly or indirectly experienced in conjunction with each link. We start with the first extreme and think of a word

connected with it by similarity, contrast, or contiguity. In this way the soldering goes on until we reach the other extreme. Indeed, we simply clothe in words our usual mode of thinking.

Hist	Civil war	Hist
	king	
	treachery	Hist
Hist	Judas Iscariot	
	money	S-p
	Roman denarius	

Going from "civil war" to "Roman denarius" by an unconscious stride, if we may so speak, means the expenditure of force just as taking long strides from one side of the street to the other. If we travel the same distance by small steps we are surer of our ground, know more about it, more likely to travel the same footsteps backward and we expend less energy. So in the mental traveling, very little nerve force is required to travel from one idea to another if it is done gradually. Whether this is so let each student try to find out for himself

The Aryan Series.

(*Optional.*)

Most of the European nations, as well as several nations in India, are sprung from the Aryan family. This family, we are told, originally lived upon the table-land behind the Himalayas. It gradually broke up and spread itself over Asia and Europe. We are descendants from this stock, being related to the other members of it both by blood and language.

The whole family is divided into seven groups or

classes. The following series includes these seven as well as the sub-classes (with their dialects) of the *Teutonic*. The student, if interested in the subject, may extend the series by taking in the sub-classes of the other groups.

INDIC OR HINDOO
"Much ado about ire [nothing."
IRANIC
"Iran" (I ran)
to hide
"kelu"*
Welsh
KELTIC
ticket
printed
Italics
ITALIC OR ROMANIC
Rome
Athens
"Hellas"†
HELLENIC OR GREEK
Greece
mountainous
windy
WINDIC
dictate
conquerors
Teutons
TEUTONIC
Germanic
LOW GERMAN
low
fever
measles
Moeso-Gothic
thickly populated
continent
Continental Saxon
Anglo-Saxon
Old English
English
England
Holland
Dutch
touch
cold
freeze
Frisian
frizzle
burnt
flame
Flemish
blemish
scar

* Welsh kelu = to hide, from which Keltic is probably derived.
† Hellas = Greece.

SCANDINAVIAN	Swede
aviary	*Swedish*
house	*Danish*
ice	Denmark
Icelandic	Norway
islands	*Norwegian*
Faroe	North sea
Ferroic	high seas
rick	HIGH GERMAN
field	

EXAMINATION PAPER.

1. Give a reason why one idea suggests another.

2. In a conversation about a civil war a person suddenly asked what the value of a Roman denarius was. How does Hobbes explain this?

3. Show that Archbishop Thomson agrees with Hobbes.

4. "The infinite speed of thought." Is this in any sense true, or is it a mere metaphor? What importance do you attach to the expression?

5. "Intermediates are complications which I readily forget." Point out the errors in this expression.

6. "The conscious finding of intermediates is an economy of nerve force." Comment upon this.

7. "The finding of intermediates is a matter of recalling what we already know—of revival." Do you fully understand this?

8. Recite the Aryan series forward and backward, without any mind-wandering, and as rapidly as you can.

LESSON VIII.

THOUGHT AND LANGUAGE.

(*Optional.*)

If the mind is sluggish, the reviving power weak, or the vocabulary very limited, we may find difficulty in getting intermediates; but in this, as in other things, "Practice makes master." Let no one be discouraged. The habit will quicken the action of the mind, strengthen the reviving power, and increase vocabulary. The exercise will bear fruit in more ways than one.

In joining extremes we use the already associated thoughts in cementing the hitherto disconnected. No foreign element is brought in to do the work. Nature aids itself in the acquisition of knowledge; for it is in joining the new to the old that we gain knowledge. Experience is brought to bear upon our innate tendency. The acquisition of knowledge is, in a sense, a process of annexation—of annexing the new to the old.

The mind has to form the relation of contiguity between the following:

1. Names and things (which bear those names)—thought and language.

2. Words of the *same* language—proper names and characteristics—dates and events.

3. Words of *different* languages.

The consideration of these three classes with their subdivisions will be of advantage to all, especially to the student of languages.

The child learns his mother tongue mostly by imitation. The mother teaches it to say "*mamma*." After many repetitions the child succeeds in uttering the sound "mamma," or something like it. In the mean time the child has been taught that the sound "mamma" represents the mother herself, because she has used the word so often in reference to herself. The child forms the relation of contiguity between the symbol mamma and the person to whom that symbol is given. The child next learns the meaning of the word "kiss." Relation is formed between the word and the act of pressing the lips together, also between *kiss* and *mamma*. In this way the process of association goes on and the complication increases as experience widens. At this age the brain is very plastic and relations are readily formed, no help being needed to bring about the cohesion.

The principle of imitation seems to be at the root of speech. It is because we hear sounds and copy them that we are able to speak. Dumbness is usually the result of deafness, and the method of teaching the dumb to speak by teaching them to imitate movements shows how deep the principle of imitation lies. We are not presented with a ready-made vocabulary, such would be a hindrance, but rise to expression in speech by natural and gradual development. Words come *after* or *with* thoughts, and thoughts man must acquire for himself. Words are the complex result of organism and intelligence. They are not purely material or purely mental, but unite the attributes of both mind and matter, and thus become the living embodiment of our dualistic thought. The attributes of mind are transfused to language by thought, just as the attri-

butes of matter are transfused to thought by language.

Mind—thought—language—matter.

No doubt the faculty of speech is original. But it is an innate power which must be called into action by outward stimulus of sound or inward stimulus of emotion. Whether thought is the parent of language or language the parent of thought is a question which we need not discuss. Suffice it to say that the former seems to be the more probable; for whence comes language if thought be not the source? Why should language make thought more than color make a picture? The living hand of the painter is required to make the picture; so the living thought is necessary to the synthesis of words. Words are nothing unless prompted by thoughts.

Whatever may be its origin the essence of human language is that it represents our thoughts. The sound word is the symbol of human intelligence.

Association ties our words and thoughts together. So that the name suggests the quality or the class.

If, as suggested above, thought is the source of language there can be no question as to the influence words have over our intelligence. Lord Bacon says: "Men believe that their reason governs words; but it is also true that words react on the understanding." Elsewhere he says (in speaking of controversies): "Men create oppositions which are not, and put them in new terms so fixed as, whereas the meaning ought to govern the term, the term in effect governeth the meaning."

The progress and development of thought are not only indicated but aided by a well-developed language.

A full and precise language is indispensable to the fullness and accuracy of our thinking. Without that we can neither embody nor retain the advance in our thought and feeling. Words sustain the memory by classification; they support attention by their fixity; they aid reflection by their power to reproduce our most secret thoughts. They are conventional signs, but they show what takes place in the mind as we invariably clothe our thoughts in speech, either external or internal. Thought is sure to find some way of expressing itself. Leibnitz points out that the Chinese, possessing but a limited vocabulary, have recourse to tones and accents to express their varied thoughts. Deprived of thought, language would cease; deprived of *every class of signs*, thought would probably cease too. One sustains the other.

(*a*) Articulate speech gives definiteness and fixedness to the complex states of our minds. It intensifies thought. It increases the accompanying consciousness and adds to clearness and distinctness

(*b*) It records the past and paves the way for future intellectual development.

(*c*) It restricts the intelligence to certain thoughts or trains of thought. Our thoughts are limited to the associated ideas we are in quest of. Hence the power of watch words, party cries and formulated beliefs in creed. Our thoughts naturally run in the groove of the words, and the continual recurrency of the same words and the same ideas makes the vibrations belonging to these ideas very vivid, and increases the accompanying ideas of esteem and importance. The more we think of these particular ideas, the less we think of others. The former are raised in our estimation; the

latter sink to insignificance. This accounts for bigotry in religion, for narrow-mindedness, for the attribution of undue importance to our own particular study and the underrating of others. The continual affection of the same part of the brain may at last bring on irritation of that part; and the result may be anxiety, despondency, jealousy, insanity. The mind should not be allowed to run in the same channel from January to December. Diversion is a condition necessary to a healthy state of mind. Business men, reflect upon this matter! If language has such influence over thought, how important it is that we should think long and well before we give our thoughts final expression!

(*d*) As Leibnitz pointed out the word is sometimes substituted for the thought. Hume also has referred to this matter, and has noticed how strange it is that we use, with tolerable correctness, words whose meaning is not present to us. But if we substitute another word we are at once conscious of the incongruity. There is a subconsciousness of the meaning, and this meaning we believe we can get at if required. In this way we save ourselves immense labor. Leibnitz makes a distinction between *intuitive* and *symbolical* thinking. When we realize all the attributes in the subject, our thinking is intuitive. In the symbolical process we use words whose meaning is obscurely presented to the mind instead of the full thought. It is a short-hand way of thinking. We think of a triangle *intuitively*, of a chiliagon (a figure of a *thousand* angles) *symbolically*. It has been said that symbolical knowledge is a bank-note which is passed from hand to hand without thinking what it stood for in particular. We should render the symbolical act intuitive if we set about counting the pence. The defect

of the purely symbolical mode of thinking is that it is apt to become verbal. We deal with relation of words rather than of things and are in danger of losing sight of reality.

Examination Paper.

1. Has the finding of intermediates any value apart from the assistance which they give to the mind to form a strong relation of contiguity between extremes?

2. "The principle of imitation lies deep in human nature." Comment upon this.

3. What is the essence of human language?

4. State some of the influences of articulate speech upon thought.

5. What does Leibnitz mean by intuitive and symbolical thought?

LESSON IX.

PROPER NAMES.

We may assist ourselves to know the meaning of an unfamiliar word by getting intermediates between that word and a better known synonym—by joining the least known to the better known. Those who find difficulty in grasping the meaning of new words and who have to refer to the dictionary over and over again will find this method of great service.

Accrescence—*crescendo*—*increase*—growth.

Chimera—*come here*—*I won't*—*fancy that!* idle fancy.

Cuspidor—*door*—*room*—spittoon.

Decussate—*discuss*—*cross-words*—to cross.

In the same way we can join the name of anything to one of its distinguishing features.

Albatross—*Alba Longa**—*longest*—largest sea bird.

Schooner—*sooner*—*too soon*—*two*—two masts.

The subject of proper names is one of universal interest and of universal difficulty. A proper noun is the name of a *particular* person, place or thing. When we make use of the words "Gladstone," and "London," we mean a particular person and a particular place.

A proper name in itself and unassociated is meaningless and unthinkable. We cannot possibly think of the *name* Gladstone by itself. We must think of it in conjunction with Mr. Gladstone or something associated with him. The name is a mere symbol, a mere sound even, which cannot be dealt with *per se*.

* Alba Longa = Rome.

It is interesting to notice that the progress of Amnesia—loss of memory—is from the *particular* to the *general*. We forget proper names, which are names of *individual* persons, before common nouns (or names of classes). Names of actions and qualities remain to the last. A common noun being a name applicable to everything of the same class is more general than the proper name. We continually make use of the same verb in expressing our complex thoughts; and the same quality we attribute to many things. *We go from the particular to the general.* This is the law of readiness in revival. Kussmaul says :—"Substantives, and especially proper names and names of things, are more easily forgotten than verbs, adjectives and other parts of speech." The same author goes on to say :—"As the memory fails, the more concrete the concept, the quicker its corresponding term will disappear."

The cause of this fact is easy to see:—

1. The more general the term is the more frequent use is made of it. Intelligent repetition cannot but form new associations and strengthen old ones.

2. It is a psychological question whether we can think of a quality apart from its name. In thinking of the *quality* "*redness*" I must summon the aid of the *name* "*redness*," in order to realize any definiteness; nay, I must place the quality in some *thing*. The moment I think of the *quality* I think of the *name*. The two are *inseparably* connected in my mind; so that the one readily recalls the other. This inseparableness is due to repetition, and to the inability of the mind to deal with abstractions *per se*. Such is not the case as regards proper names and concrete terms generally. I can speak to my friend without making use of his

name at all. I have the man himself to talk to. In his absence I can recall an image of him and think of him —all in total forgetfulness of his name. There is no *necessary* connection between the name and the man. But if, on meeting my friend or in reproducing an image of him in his absence, I am able to recall his name, it is because I have associated that *name* with that *man*. If I forget the name, it is because that association is not strong enough. The one is not able to revive the other. Sometimes this inability to recall the name arises from the fact that we never got hold of it—never got a vivid impression. When being introduced to a stranger let us not be excited, and let us listen to the name however badly it may be given to us, and however strange it may be. The name is very often indistinctly uttered. If excited we will not pay attention to it. Besides, when the excitement passes away, the condition of the brain will be different from that in which it was when the sound (name) was heard. The name will not be readily revived. A lady makes a call. She forgets the name of the lady whom she calls upon while in the act of ringing the bell, and cannot recall it for some time afterward. Why?—simply because she is excited.

3. Dissolution in aphasia progresses from the particular to the general. This is a law. Those who cannot remember names need not be alarmed and think that they are afflicted with any mental disease. It is nature itself that makes you forget the particular before the general. Disease in this case only reveals the law of nature.

This law becomes all the more interesting and better understood when we notice that in the evolution of

language the *reverse* order is observed. Philologists tell us that the most *general* words come *first* and afterward the most specific. At this stage man merely asserts that something *is*—makes a definite assertion of *being* as opposed to *non-being*. This is a judgment as to existence merely—the most crude of all—judgment involved in all judgments. Here the mind is comparatively passive, and man felt himself nothing in the midst of the infinitude around him. By degrees he began to break up this indefinity, and commenced a rude classification according to elementary principles.

The sense of order, uniformity, recurrence (as of sun and season), dawned early and dimly on the mind. He referred objects of perceptions to the same place, and the same time, distinguished them as one or many. He proceeded from indefinite to definite knowledge. We are here touching upon two questions in philosophy. (1) Do we know first the individual or the general? What is the *primum cognitum* (the first known)? (2) Are names originally signs of individual objects, or of general ideas? What is the *primum appellatum* (the first named)?

As suggested above, our knowledge at first is purely *indefinite*. Gradually we *classify* according to very *elementary principles*. Being attracted by a certain feature of an object we *abstract* that feature and consider it by itself as far as the human mind can do so. Finding the same attribute in other objects we *generalize*—transforming abstracted features into general ideas. In the end we *individualize* by distinguishing objects as members of a class, or as possessing this or that particular attribute. Our knowledge progresses from the dimness of the undefined through the abstract

to the clearness of the general idea and of the individual object. Our thought, in a sense, begins at once with the general and the individual. The two dawn upon consciousness together, for the "general" involves "particular," and *vice versa*. So much concerning the *primum cognitum*. What about *names*, with which we are more directly concerned at present? The name originally must have indicated *some view of the mind* about the object, and not the whole object—some particular point. It suggests a quality of the object or class to which it belongs. "*Flumen*" is the name given to "*river*" from its striking and constant feature of motion—*fluere* = to flow. In this way names are signs, not of things themselves, but of our partial and general conceptions of them. Max Müller goes so far as to say, "All nouns express originally one out of many attributes of things, and that attribute, whether quality or action, is necessarily a *general* idea."

According to all this, the first to receive a name is the quality or the action. And what is deepest in our nature remains true to us to the very last. The more we see of Nature the more we see of her sublimity.

This fascinating subject has led us somewhat astray. But to return, to remember a man's name, it is quite evident that we must join the name to the man himself. Let me introduce you to Sir William Thomson. Don't be excited, but listen to the name. Get hold of it—Thomson without a "p." In a month's time you meet him and call him by *name*. How pleased the old gentleman will be to find that you remember his name. How much do business men lose every year by not attending to the names of their customers! Mr. Blaine saw the importance of this matter when he entered upon

political life. In many instances the power of retaining names is acquired, as in the case of Mr. Blaine. Then, you remember Sir William's name. What have you done? You have joined the name to the man, and seeing the latter brought to mind the former. If you had not done so, why should the sight of the man revive the name? Why should you not call him by some name other than Thomson? But you say, "I often do call persons by the wrong name." That is because you have not succeeded in forming a strong relation between the name and the man—there being no necessity in the matter as already pointed out.

The next question is, "Can we do anything to assist the mind to do its work in its own way?" Yes. Each of our friends has something by which we characterize him or her—in short, something by which we know him—something we are sure to remember. *Indeed, if we do not know something concerning the man, we do not know him at all*—occupation or profession—bodily feature—place we met or what not. This is the *known*, what we are sure to have at our command. Let us connect this with the name which we are liable to forget. Take an example which came under the notice of the writer seven days ago. A lady could not recall the name "Gambetta." She repeatedly found the same difficulty. She, of course, knew that Gambetta was French. Think of:

French—*play*—*gamble*—Gambetta.

She has since remarked that there is no more difficulty with regard to this name. This is associating the name to the characteristic, what the mind *always* does either consciously or unconsciously. It is a *natural* method, although it may have the difficulty of selecting

a characteristic and of finding intermediates. "But we do not know a man by a single feature." True, but can you prove that the mind does not grasp one striking feature, grouping others around it making up a whole?

Often we can recall a man's name by tracing backward and getting at the place where we met him. I am introduced to a gentleman in this room. I get an impression of the man, name and the room—altogether comprising a whole experience. In a month's time I meet this gentleman. The name is very slow in coming. What is it? Where did I see him? Oh, in such and such a room. His name is so and so.

This is the "*Law of Totality*"—that tendency of the mind to add factor after factor until the whole experience (total) is brought back. Seeing the man was not enough to revive the name; but it is revived by the aid of another part of the whole experience, viz., room.

Sound also is a potent element in the revivability of a name. Let each letter of the alphabet be distinctly and slowly sounded. We get a better impression of the initial letter than any other, and this letter being more persistent in memory drags the whole word with it. The sound of the letter B will bring to mind the names we know beginning with that letter, especially if we combine with it the different vowel sounds. Proper names, as such, have no meaning. They are mere sounds. Hence nowhere is sound more powerful than here. For this reason also the last intermediate must be related to the name by *sound*, unless we give a *meaning* to the name by changing the proper into common noun. *Hunter* has no meaning as a *proper noun*, but it has meaning as a *common noun*.

Of the following the student is requested to learn any 10 in conjunction with 20 more of his own. Let him review these 30 once per day for a week. Then let him adopt the plan whenever he has need for it.

Characteristic.	*Name.*
Scholarly—*bright*	Albright
Captain—*steamer—lake*	Blake
wrinkles—*furrows*	Burrows
frizzy hair—*frizzy—bent in*	Miss Benjamin
postmaster—*mail-bags—heavy burden*	Burton
baker—*cart*	Carter
philosopher—*argues with care*	Caird
warm hearted—*bright—shiny*	Day
white beard—*dye it*	Dyott
robust—*hardy—enduring*	Durant
nervous—*ill—hospital—ward*	Edwards
different colored eyes—*odd—even*	Evanson
deafness—*acuteness—cunning*	Fox
candid—*open—free*	Freer
lawyer—*lawing—harassing*	Harrison
cricketer—*game—won—had a way*	Hadaway
lame—*can't go round—circulation of the blood*	Harvey
pugilist—*hurt*	Hurtt
teacher—*pupil—eye—lid*	Liddy
short—*manikin*	Mankin
ingenious—*mechanic*	McCann
paralyzed—*tremble—knee—kneel*	McNeil
confectioner—*mixture—mess—*	Moesta
judge—*judgment—debt—owing*	Owens
bookkeeper—*ledger—page*	Paget
merchant—*import*	Porter
quick walk—*patter*	Mrs. Patterson

Characteristic.	*Name.*
invalid—*doctor—quack*	Quackerbush
near-sighted—*strain*	Strain
merchant—*wharf—water—spill*	Spillman
apothecary—*drugs—sour*	Sowers
heavy—*brow—temple*	Templeton
humorous—*witty*	Witter
conductor—*knows the way—wis*	Wistar

Any plan which tends to *arrest the attention* will aid us to remember names of individuals as anything else. Spelling aloud, writing, noticing the number of syllables, *acquirement of the habit of listening to the name when given to us*—all contribute to the association of the particular sign with the particular person. Look the man in the face, shake him by the hand, make up your mind to remember him and his name. We generally succeed in doing what we are determined to do. Listlessness is an evil.

Examination Paper.

1. How can we assist ourselves to acquire the meaning of unfamiliar words?

2. Give the law of dissolution in aphasia. Has this law anything to do with the development of a language?

3. "We can form mental images of persons and things without their names, but we acquire abstract ideas by the aid of words." What is the result of this as found in experience?

4. Why did the Romans give the name "*Flumen*" to what we call *river*? What is your inference from this?

5. Why should our thinking of an individual revive his name?

6. What is a characteristic? "Connecting the name with the characteristic is *natural*." Comment upon this.

7. What is the "Law of Totality"?

8. Why should you approach the proper name by sound? Under what condition can the last intermediate have any other relation with the name?

LESSON X.

DATES.

It is by contiguity that we associate an event with its date. The battle of Waterloo was fought in the year 1815. To remember this fact we have to connect "1815" with the word "Waterloo." But this is comparatively a difficult task to do, because figures are meaningless and highly abstract. They roll about like grains of sand. We cannot easily grasp them and join them with the event. Still this connecting must be done if we are to remember the date. The difficulty is so great that some people cannot retain numbers for any length of time. For these people the method of translating numbers into words is of great value. 1 = t; 8 = f; 1 = t; 5 = l—1815 = too fatal. We have now converted the number "1815" into the words "too fatal." This phrase has meaning and is connected in our minds with "Waterloo"; for this battle was certainly too fatal for Napoleon. When was the battle of Waterloo fought? In the year "too fatal"—t—f—t—l = 1—8—1—5 = 1815. Those who know that this battle was fought in *this century* may, with advantage, leave out the "18"—converting "15" into a word, and connecting this word with "Waterloo." In any case the "1" could be left out because we know it was not fought in "815." We cannot possibly make such a mistake as taking the 9th century for the 19th.

When we cannot procure a date word already connected with the event we can fall back upon intermediates.

Let no one fail to learn 10 of the following and to review them once a day for a week. They are dates which all ought to know:—

Battle of Marathon—*file—broken*—RINS (490 B. C.)	
Greece became Roman Province—"*decline*"—*dark*	TORCH (146 B. C.)
Landing of Julius Cæsar at Pevensey—*rouse*	LAID (55 B. C.)
Establishment of the British Parliament—*law—defence*	TENABLE (1295)
Gunpowder first used in battle at Cressy	THEY MARCH (1346)
Reformation in Germany—*contest*	ATHLETIC (1517)
Execution of Mary, Queen of Scots—*death*	LEAVING (1587)
Defeat of the Spanish Armada—*retreated*	TO LEAVE OFF (1588)
Telescope invented by Jansen—*to help us to see*	TO HELP US (1590)
Discovery of the circulation of the blood by Harvey	DISHED UP (1619)
First newspaper printed in London by Nathaniel Butter—*paper—hair*	CHIGNON (1622)
English postal system established—*communicate with a friend*	TEACH MY AID (1635)
Barometer invented by Torricelli—*weight—influence*	CHARM (1643)
Execution of Charles I.—*beheaded—cut off*	SHARP (1649)

Establishment of Sunday schools – *boon*	GIFT (1781)
Introduction of vaccination by Jenner—"*vacca*" *is a* "*cow*" —*field*	CABBAGE (1796)
Safety lamp invented by Sir Humphry Davy — *lamp* — *night* – *day*	DAILY (1815)
Kaleidoscope invented by Sir Dd. Brewster—*beautiful colors* —*see*—*day*—	DAILY (1815)
First Railway in England for transit of passengers (from Liverpool to Manchester)	AMAZE (1830)
Negro slavery ceased in English colonies—*free*	MERRY (1834)
Electric telegraph invented by Wheatstone—	MAKE (1837)
* The method of taking likenesses discovered by Monsieur Daguerre — called daguerreotype—*outline*	MAP (1839)
Adoption of penny postage system—*special delivery*	RACE (1840)
Discovery of gold in California —*golden fleece*	ARGO (1847)
Atlantic cable laid from Valentia in Ireland to Trinity Bay in Newfoundland—*dispatch*	LEAVE (1858)

In dealing with dates of birth and death of great men we can sometimes disregard the century of the date

* This is the origin of photography.

of birth—at least, we can generally leave out the "1." Knowing the date of the birth we certainly can afford to leave out the century of the date of death. This plan will enable us to combine both dates—reducing 8 figures to 4 or 5, which is a considerable simplification. If preferable, the student can select *two* words—one to represent the last two or three figures of the date of birth and the other the last two figures of the date of death. Of these dates, 20 are to be memorized and reviewed once per day for a week.

Cambyses—*cambric*	LINEN (b 522 B. C.)
Socrates—*would not worship the gods of Athens*	WORSHIP ME PASHA (469–396)
Euclid—*Geometry—perfect.*	ERRORS (b 440 B. C.)
Demosthenes — *orator — persuasive—move*	MOVE A HOLY MISSION (385–322)
Alexander the Great—"*Gordian knot*"—*hard—soft*	MCDONISH MINIM (356–323)
Cæsar—*warrior*	DISEASED WARRIOR (100–44)
Cato—*toe—dance—ball*	BALD ROUGE (95–46)
Mohammed—*coveted followers*	HE LIKED EACH MAN (571–632)
Aquinas (Thomas)—*stoical*	DENY NO RIGOUR (1224–1274)
Luther—*Reformation—contest*	A ROUGH MARCH (1483–46)
Knox (John)—*knock down—sale*	WHOLESALE CAIN (1505–72)
Calvin—*divine—pulpit orator*	LISP A SHARE (1509–64)
Lord Bacon—*trial*	HE ALLEGED NO ISSUE (1561–26)

Richelieu—*the arena of politics*	LIVELY ARENA (1585–42)
Hobbes—"*association of ideas*" —*associate—friend—part*	LEAVE OFF GAPE (1588–79)
Molière—*hair — false—genuine*	GENUINE GAME (1622–73)
Newton (Sir Isaac)— - - - -	SHARE IN KNOWING (1642–27)
Leibnitz — *German — band—dance*	SHARE A SCHOTTISCHE (1646–16)
Berkeley—"*castle*"—*realm*	CHIEF REALM (1684–53)
Voltaire—*irreligious— divinity* —"*shapes our ends*"	SHAVE OUR CAVE (1694–78)
Hume—*reasoned away all reality*	QUIT THE CAGE (1711–76)
Wesley (John)—*formed a new sect—left the old*	GO SWAMP IT (1703–91)
Reynolds (Sir J.) *renowned painter*	HE CAN MAP ANY (1723–92)
Burke (Edmund) *orator—moves to tears*	HE CAME SOBBING (1730–97)
Haydn—*hay making—perspire* —*wash*	COMMON SOAP (1732–09)
Gibbon—*historian—keeper of facts*	GAME KEEPER (1737–94)
Raikes (Robert) — *Sunday school—treat*	CAME ELATED (1735–11)
Jacobi—*Jacob—well—pitcher —carry*	CARRY MY TUB (1743–19)
Bentham (Jeremy)—*jurisprudence—prudent—man*	GRUFF MAN (1748–32)
Goethe—*thé—tea — refreshing —care-worn*	CARE BE MINE (1749–32)

Stewart (Dugald)—*philosopher*—*dry* { GLOOMY ENOUGH (1753–28)

Robespierre....."*revolutionist*" { GO LEAVE *I* ARTHUR *you* (1758–94)

Malthus—*economist*—*extravagance* { CATCH *a* SHAM *heir* (1766–34)

Napoleon Bonaparte—*captive*—*bond* { CASH *a* BOND (1769–21)

Clay (Henry)—*mud*—*land* { COCOA COLONY (1777–52)

Abercrombie (John) "*Intellectual Powers*"—*to be coveted* { I COVET *her hair* (1781–44)

Stephenson (Geo.) *steam engine*—*porter's fee* { GIVE TO *her a fee* (1781–48)

Faraday—"*safety lamp*" KEPT CHECK (1791–67)

Carlyle (Thos.)—*car*—*cable car* { CABLE OUT (1795–81)

Barnes—*barn*—*empty* CAR FOLKS (1798–70

Von Moltke—*Emperor William's adviser* { ADVICES (b 1800)

The following were born in this century, hence the "18" being left out and the units and the tens only being given. If there are no tens the units only are translated—1802 = 1 thousand, 8 hundreds, no tens and 2 units. In a case of this kind the units only are converted into figures.

Miller (Hugh)—*Geologist* NOTARY (1802–1856)

Emerson (R. W.)—*essayist*—*words*—*sound* { HOMOPHONE (1803–1882)

Disraeli (Lord Beaconsfield)—*leader* { LOVED (1805–1881)

Manning (Cardinal)—*well instructed*	*Au fait* (*1808*)
Mendelssohn—*music—noise*	BARK (*1809–1847*)
Darwin (C. R.)—*monkey*	BUFFOON (*1809–1882*)
Gladstone (W. E.)—*Hope of Ireland*	*Hope* (*1809*—)
Burritt (Elihu) — *blacksmith —day's work*	DAISY CUP (*1810–1879*)
Dickens (C.)—*novel—laughter —strengthening*	TONICS (*1812–1870*)
Bishop Colenso—*Africa—heathen—household images*	TERAPHIM (*1814–1883*)
Livingstone—"*lion*"—*taming*	TAMING *him* (*1813–1873*)
Henry Ward Beecher—*beach*	DIM FOG (*1813–1887*)
Herbert Spencer—*champion of evolution*	*Wins* (b *1820*)
Thomson (Sir Wm.)—*Glasgow —ship-owner*	OWNER (b *1824*)

BATTLES IN THE AMERICAN WAR OF INDEPENDENCE, WITH DATES AND RESULTS.

(*Optional.*)

The initial letter of the word "England" is "E." An "E," therefore, at the beginning or end of the date word means that England was victorious. The absence of this letter at beginning or end indicates that the Americans won. Battles fought in the same year and won by the same party have one common date word. In learning this series, let the student make use of an atlas. A sketch may be drawn inserting the site of the different battles. The date words

express only the last two figures of the date. This series, if learned, is to be recited once every day for a fortnight for the sake of the training.

CONCORD
discord
war
kill (75)
hill
BUNKER'S HILL
valley
river
St. Lawrence
QUEBEC
"Take care of the rock" *
rock
eagle (75)
crooked beak
winding
brook
BROOKLYN
"City of churches"
swallow
bird
cage (76)
escape
Canada
England
Trent
TRENTON
train
accident
gash (76)
throat
"Crown Prince"
PRINCETON
BENNINGTON
bend
bow
head
cook (77)
dinner
wine
BRANDYWINE
brandy
water
STILLWATER
germ
GERMANTOWN
town
country
soil
gangue † (77)
gang
CONVENTION OF SARATOGA
toga

* Quebec = "Take care of the rock."

† Gangue is a mineral substance which encloses any metallic ore in the vein.

Roman
chariot
gig (77)
"thrown out"
hurt
moan
MONMOUTH COURT HOUSE
house
bequeath
gave (78)
a blow
beheaded
Charles I.
CHARLESTOWN
seacoast
uneven
"cam" *
CAMDEN
den
vice (80)
crime
lock up
pens
COWPENS
cow
fat (81)
fraternity
guild
GUILFORD
afford to give
collection
kirk
HOBKIRK'S HILL
climb
tree
yew
EUTAW SPRINGS
spring
autumn
fade (81)
bloom
flourishing
New York City
YORK TOWN
siege of three weeks
food (81)

EXAMINATION PAPER.

1. How do you account for the fact that so many people find great difficulty in remembering dates?

2. What figures of a date may be often disregarded?

3. We cannot always find date words already connected with the event. In this case how are we to proceed?.

* Cam = crooked.

4. Give the dates of: Reformation in Germany, first newspaper printed in London, introduction of vaccination by Jenner, electric telegraph invented, Atlantic cable laid.

5. What eminent philosopher died in 1776, the same year as the "Independence of America" was declared?

LESSON XI.

ACQUIREMENT OF FOREIGN VOCABULARY.

(*Optional.*)

In the acquisition of a foreign vocabulary we associate—a case of contiguity—the foreign word with the word of same meaning in a more familiar language, usually with the word which has the same meaning in our mother tongue. It is a process of annexation of the new to the old—our usual way of gaining knowledge. It must not be understood by this that knowledge is *stuck on* to the mind, piece by piece. It ought rather to be *incorporated in* the mind. We grow in knowledge by the contact of our new experience with the old—by the contact of our present experience with *ourselves* as living monuments of what we are by nature and past experience combined.

Whatever method we adopt in learning a foreign language we must learn the meaning of a few words to start with. And in the acquisition of this primary vocabulary we go mostly by sound and sight—a certain word (symbol or sound) is found to be equivalent to a certain word in the mother tongue. By and by we are able to manipulate these words in the formation of sentences. The living thought is able to make use of the raw material. We are now able to *think* in this foreign tongue. This we could not do at first. Consider the difficulty of the foreigner. He listens to what you say, translates your language into his, forms his judgment by the aid of his own language

and then translates back again in order to make himself intelligible to you. This accounts for the fact that a foreigner may understand what you say, although he may not be able to speak to you. It is only by practice that he is able to do away with this translation into his own language. The moment we are able to think in a certain language we are no longer dealing with isolated words but with a sentence, for the *sentence is the unit of speech.* Grammar then should be taught analytically—we should begin with the sentence and analyze it.

In our attempt to increase our foreign vocabulary we find that some words are much more difficult to remember than others. We have to refer to our dictionary over and over again. In such cases, it would be an economy of time to resort to intermediates—the last intermediate being always similar in sound to the foreign word. Such plan will help the mind to form the necessary cohesion between the two words in question. Let the student of languages put it to a test. Others may omit this lesson.

GREEK.—Nouns arranged alphabetically in declensions:

1.	Lover—*letter*—*errand*	ἐραστής (m)
	judge—*critic*	κριτής (m)
	cloud—*water*—*nymph*	νεφέλη (f)
	quiver—*arrow*—*far*	φαρέτρα (f)
2.	work—*finished*—*gone*	ἔργον (n)
	apple—*fruit*—*melon*	μῆλον (n)
	mind—*brain*—*head*—*nose*	νόος (m)
	bone—*hard*—*stone*	ὀστέον (n)

Richelieu—*the arena of politics*	LIVELY ARENA (1585–42)
Hobbes—"*association of ideas*"—*associate—friend—part*	LEAVE OFF GAPE (1588–79)
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Emerson (R. W.)—*essayist—words—sound*	HOMOPHONE (1803–82)
Disraeli (Lord Beaconsfield)—*leader*	LOVED (1805–81)

2. to be cold—*hot—Algiers*	algēre
to cherish—*favor*	fŏvēre
to weep—*depart—flee*	flēre
to rejoice—*gay—gaudy*	gaudēre
to spin—*at home—near*	nēre
to roast—*gravy—run—torrent*	torrēre
3. to atone—*in lieu*	luĕre
to place—*on horseback—pony*	pōnĕre
to seek—*pet*	pĕtere
to shake—*quake*	quatĕre
to pluck—*draw—face—veil*	vellĕre
to sweep—*hard—very*	verrĕre
4. to open—*aperture*	ăpĕrīre
to measure—*mete*	mētīri
to rise—*sun—East—orient*	orīri
to bury—*sepulcher*	sepelire

FRENCH:

hat—*shape*	chapeau (m)
knife—*cut*	couteau (m)
church—*lecturn—eagle*	église (f)
ladder—*scale*	escalier (m)
fire—*fuel*	feu (m)
glove—*gauntlet*	gant (m)
boy—*care for a son*	garçon (m)
milk—*breakfast-table—lay*	lait (m)
house—*mason*	maison (f)
soft—*quiet—move*	mou (m)
queen—*reign*	reine (f)
foolish—*drunkard—sot*	sotte (f)

Verbs—irregular—arranged alphabetically :

to go—*walk—alley*	aller
to reach—*attain*	atteindre
to know—*reconnaitre*	connaître
to say—*name—pet name—"dear"*	dire
to do—*well—fair*	faire
to read—*learn*	lire
to be born—*nature*	naître
to rain—*heavy—light—plume*	pleuvoir
to be able—*strong—weak—poor*	pouvoir
to laugh—*behind back—rear*	rire
to follow—*smilingly—sweet as ever*	suivre
to conceal—*open—tear*	taire
to be worth—*valuer*	valoir

The student must not think that the above words have been specially selected. They were taken at random, without any forethought as to intermediates. In the English language there is a large Latin, French, and Greek element—so many words being derived from these languages. In dealing with other tongues the principle is exactly the same, although we may experience more difficulty in finding words similar in sound to the foreign words. To show that this is so, a few Welsh words are given below. The English language contains but a very small Keltic element. The Welsh is a language of considerable interest to the philologist.

WELSH :

Wing—*eagle—high rock—"Aden"*	aden
donkey—*mount—ascend*	asyn
teacher—*author—*	athraw
blessing—*"bene"*	bendith

king—*head—brain*	brenhin
bread—"*staff of life*," *staff—bar*	bara
cheese—*milk—cows*	caws
back—*broad—narrow—cave*	cefn
stone—*street—car*	carreg
heart—*hard—callous*	calon
ear—*close*	clust
cloud—*travel—come—mule*	cwmmwl
prison—*van—car*	carchar
sheep—*shepherd—David*	dafad
city—*hotel—dinner*	dinas
God—"*Dieu*"	Duw
salt—*preserved—hale*	halen
great—*greater—more*	mawr
head—*pain*	pen
tree—*bending—prone*	pren

The Zodiac Series.

Zodiac is a name given to a broad belt in the heavens because most of the constellations in this zone are figures of *animals*. It is divided into *twelve* parts called *signs*, and in the middle of it is the *ecliptic* or the path traced out in the sky by the apparent annual motion of the sun.

Zodiac	hurt
Zodiov	*Moaned* *
animal	roar
"ram"	"bull"
ARIES	TAURUS
"battering"	"fight"

* M = March—*Moaned* = March 21—n = 2. d = 1. The sun enters Aries on the 21st of March—at the vernal equinox.

two
twins
GEMINI
small
unable
I can, sir
CANCER
"catch a crab"
overtake
Joined *
hands
claws
"lion"
LEO
daring
timid
"virgin"
VIRGO
go
free
"liber"
LIBRA
Latin

"*Senem*" †
old man
"Four *score* and ten"
SCORPIO
pain
shooting
archer
SAGITTARIUS
slaughter
lamb
goat
CAPRICORNUS
horn
bullock
beef
Dined ‡
wine
water
"aqua"
AQUARIUS
Aquarium
"fishes"
PISCES

There are twelve signs in the Zodiac and twelve months in the year, so that the sun enters each sign about the 21st of each month. Four dates, however, are given because they are important. Besides, the

* *Joined* = June 21. Sun enters Cancer on the 21st of June—summer solstice (*sol* = sun; *stistere* = to cause to stand).

† Senem = accusative of senex = old man—September 23d—autumnal equinox, when sun enters "Libra."

‡ The sun enters Capricornus at the winter solstice—about December 21st.

method shows how we may express months and days in words.

The following exercise, also, may interest the student of languages as well as showing the adaptability of the three laws and the idea of intermediates :—

THE GREEK ALPHABET.

(*Optional.*)

A	*alphabet*	Alpha
B	*"B" shaped*	Beta
Γ	*hook-shaped — joined — "marriage"— γάμος*	Gamma
Δ	*triangular—pyramid—Nile*	Delta
E	*"E" shaped*	Epsilon
Z	*"Z"*	Zēta
H	*"H"—breathing—necessary—eat*	Eta
Θ	*circle—theatre*	Thēta
I	*ι—smallest—iota*	Iōta
K	*"K"*	Kappa
Λ	*V turned upside down—head over heels —lamb*	Lambda
M	*μ—long tailed—cat—mew*	Mu
N	*ν—"v"—envy—nothing new*	Nu
Ξ	*three "I" 's—complicated — compound letter X*	Xi
O	*Oh my!*	Omicron
Π	*two "I" 's—two eyes—magpie*	Pi
P	*peas—peas in a pod—row*	Rho
Σ	*M sideways —mute— deaf and dumb— signal*	Sigma
T	*T square—drawing—taught*	Tau
Υ	*tree shaped—yew*	Upsilon

Φ	*dart through the heart—hatred—fie*	Phi
X	*exercise—food—chyme*	Chi
Ψ	*candlestick—enlighten—mind—psychology*	Psi
Ω	*horse-shoe—lost—oh me!*	Omĕga

The relation of contiguity is formed between the written character (sight) and its name (sound). The intermediates are means to this end.

EXAMINATION PAPER.

1. Is *sound* of any help to us in acquiring the vocabulary of a foreign tongue?

2. Knowledge ought to be *incorporated in* the mind. Explain this statement.

3. "The foreigner has at first to translate your statement into his own language and think in that language before he can reply." Comment upon this matter.

4. Commit to memory ten foreign words that have been troublesome to you. Let each word be *thoroughly* learned before going on to the next.

5. What method is adopted in the zodiac series of expressing "months and days"?

6. What is the relation between the character Δ and its name "*Delta*"?

LESSON XII.

GROUPING OF DATES—POET SERIES.

It is a natural tendency of the mind to associate—to group together. There is no such thing in our experience as an *isolated* fact. We know things *in* themselves, it may be, but not *by* themselves. We know them in their *relation* to other things. *All knowledge is relative.*

Hence the conscious grouping of facts according to the laws of similarity, contrast or contiguity is natural. We see this in our daily experience. We have only to watch the operations of our own minds. Even slippery figures are manageable in this way without being translated into words. If we know one date, it is a very easy matter to add another if there is some relation between them. You know the date of the "Declaration of the American Independence"—1776. Notice that David Hume died that very same year. This is probably enough to enable you to remember, once for all, the date of the death of that eminent philosopher.

Mendelssohn, Darwin, Gladstone and Tennyson were born in the same year, 1809. If we remember the date of birth of one of these great men, we will remember all four. Besides, the fact that these men were born in the same year will interest us and will attract our attention. Interest, attention and memory follow each other. We can deal with the group better than one individually. One lady remembered when Queen Victoria was born (1819) because her father was born that year; another had no difficulty with the date of the battle of Waterloo (1815) because she had noticed it

was the very year in which her father was born. Ready made coincidences of this kind do not always stare us in the face. But they can be found if we wish to look for them; and the best way to remember a date, apart from its translation into words, is to compare it with another. This is the principle upon which some histories are compiled. Contemporary events are given side by side for comparison.

Let the student test this plan of grouping and comparing by the thorough learning of *ten* of the following, and let these ten be reviewed once per day for a week:

1. Gladstone, Lincoln, Darwin, Tennyson, E. A. Poe and Mendelssohn were born in 1809. What an important year in this history of the globe!

2. Translation of Elijah, about 888 B. C. Marius and Sylla engage in civil war, 88 B. C. Odo became King of France, 888 A. D.

3. Saul made King of Israel, 1095 B. C. First Crusade under the leadership of Peter the Hermit, 1095 A. D.

4. Birth of Alexander Hamilton and Lafayette—1757. Death of Lafayette and cessation of negro slavery in English colonies—1834.

5. Aristotle and Demosthenes died in 322 B. C.

6. The battles of Waterloo and New Orleans—1815. Magna Charta was signed 600 years before—1215.

7. Death of John Bunyan and birth of Alexander Pope—1688. Byron was born 100 years later. The Spanish Armada was destroyed in 1588.

8. Henry Clay and Daniel Webster died in 1852.

9. Duke of Wellington, Napoleon and Cuvier were born in 1769.

10. J. S. Bach and Handel were born in 1685.

11. Sir Robert Peel, Wordsworth, J. C. Calhoun

died in 1850. California was admitted into the Union in the same year.

12. P. A. Lebrun and Dr. Livingstone died in 1873.

13. John Calvin died in the very year in which Shakespeare was born—1564.

14. Macaulay and Bancroft were born in 1800. Dryden died, and James Thomson was born, 100 years before this—1700.

15. Burns, Schiller and Fitt were born in 1759. Handel and General Wolfe died in this year. Macaulay and Rufus Choate died in 1859.

16. Death of Prince Albert and commencement of American civil war—1861.

17. Settlement of the barbarians within the limits of the Roman Empire—376. Overthrow of the Empire by these barbarians—476. First Olympiad—first authentic date in Greek History—776 B. C. Declaration of American Independence—1776. Publication of "Decline and Fall of Roman Empire"—1776.

The student should compare the character and works of the men whose names are given in these examples.

18. John Adams and Thomas Jefferson were both lawyers by profession, both signed the Declaration of Independence—both were Vice-Presidents and Presidents of the United States and representatives of their country at foreign courts. The one was shrewd and sagacious, the other bold and outspoken. Both died on the 4th of July, 1826—the same date of month as Declaration was signed 50 years before.

The battle of Gettysburg was also fought on the 4th of July, 1864.

No attempt has been made to arrange these examples in their proper order. This is left to the student to do

in his selection of his *ten*. There is danger in doing too much for the pupil. The more you help some people, the less they will help themselves. It is left to the option of the learner whether or not to translate these dates into words.

THE POET SERIES—25.

This series is to be learned by finding the relation between each pair of words, and recited forward and backward once per day for a fortnight. The name of the poet is given in large capitals, date of his birth in italics and one of his chief works in small capitals.

CHAUCER
"The father of English poetry"
old
time
time enough (1328)
start
journey
pilgrims
CANTERBURY TALES
comic
Comedy
SHAKESPEARE
spear
war
peace
leisure (1564)
"freedom from business"
night
murder
MACBETH
"general"
military
MILTON
mill
corn
Egypt
Joseph (1608)
"Bethlehem"
"Nativity"
PARADISE REGAINED
"The garden of Eden"
DRYDEN
den
dungeon
"Black Hole of Calcutta"
jammed (1631)
press

tear
"ab" *
ABSALOM AND ACHITOPHEL
fell
Rome
POPE
clean-shaved
shave off (1688)
face
man
ESSAY ON MAN
manikin
"Tom Thumb"
THOMSON
son
child
kisses (1700)
wet
season
"THE SEASONS"
sea
blue
GRAY
stone
house
cottage (1716)
pretty
elegant
ELEGY WRITTEN IN A COUNTRY CHURCHYARD
rest
roam
GOLDSMITH
gold
rich
gay enough (1728)
jaunt
THE TRAVELER
drover
cow
COWPER
melancholy
cheerfulness
music
gamut (1731)
note
"of credit and renown"
JOHN GILPIN
"Of famous London town"
smoke
fire
ROBERT BURNS
gas
globe (1759)
glass
window
cot
THE COTTERS' SATURDAY NIGHT
dark
swarthy

* Latin "*ab*" = from—noting point of departure.

WORDSWORTH
wordy
political meeting
caucus (1770)
discussion
subject
digression
THE EXCURSION
railway-fare
scot free
SCOTT
novel
love
coquette (1774)
lady
THE LADY OF THE LAKE
lake
bake
coal
COLERIDGE
ridge
cloud-breaking
rain
gingham (1773) *
antiquity
THE ANCIENT MARINER
Atlantic
South
SOUTHEY †
Lovell
Quaker (1774)
quake
heroic
JOAN OF ARC
"The Siege of Orleans"
camp
CAMPBELL
bell
gong
Hong Kong (1777)
"British possession"
YE MARINERS OF ENGLAND
maritime
ship
moor
MOORE
Moorish caravan
driver
commander
K. C. (hard) *B.* (1779) ‡
knighthood
elevation

* Gingham = umbrella. Umbrellas are of great antiquity, being known to the Greeks and Romans.

† Southey, after quitting Oxford, associated himself with Coleridge and a young Bristol Quaker, named Lovell, and the three young men married three sisters.

‡ K. C. B. = Knight Commander of the Bath.

lallation
LALLA ROOKH
lullaby
BYRON
gave away a wife (1788)
wandering life
CHILDE HAROLD'S PILGRIMAGE
grim
fierce
WOLFE
shoot
"arrow"
Cupid (1791)
cupidity
desire
fame *
THE BURIAL OF SIR JOHN MOORE
casket
shell
SHELLEY †
Leigh Hunt
leeward
boat

cabin (1792)
apartment
palace
QUEEN MAB ‡
"babe"
mother
MRS. HEMANS
hymns
pulpit
occupier (1794)
possession
home
THE HOMES OF ENGLAND
may be *called* a model
MACAULAY
lawyer
magistrate
fasces (1800)
seizes
destroyed
THE SPANISH ARMADA
Queen Elizabeth
crown
Laureate §

* "Slowly and sadly we laid him down,
From the field of his *fame*, fresh and gory."

† Shelley was drowned in crossing the Gulf of Spezzia. The body being washed ashore was burned by Byron, *Leigh Hunt*, and other friends. The remains were conveyed to Rome and buried close to those of Keats.

‡ Welsh Mab = baby.

§ The poet of the Sovereign was first called *Laureate* in the time of Edward IV.

TENNYSON
antennæ
insect
her (1809)
be
was
"He was not" *
ENOCH ARDEN
Methuselah
long-lived
LONGFELLOW
fellow
modest
coy (1807)
girl
Preciosa
"And I am happy" †
THE SPANISH STUDENT

brown-study
BROWNING
whitening
whiten (1812)
brighten
bright
thoughts
HOME-THOUGHTS
home-sickness
low-spirited
low
LOWELL
well
deep (1819)
sorrow
death
change
THE CHANGELING

EXAMINATION PAPER.

1. "All knowledge is relative." Explain this statement.

2. What method has been suggested for remembering dates apart from that of translating them into words?

3. Give the names of few eminent men born in 1809.

4. When was the battle of Waterloo fought? When were the two generals of that battle born?

* "Walked with God, and he was not for God took him."—Gen. v. 24.

† "Let me but hear thy voice and I am happy."—Victorian—"The Spanish Student."

5. Give the first authentic date in Greek History. Give other important dates ending with 76.

6. Recite forward and backward "the 25 poet series" without any mind-wandering. Time yourself.

LESSON XIII.

THIS lesson is optional, being intended for Biblical students. Recite the series, if learned, once per day for a fortnight.

The creation according to the sacred writings	Rises o'er (4004 B.C.)
Deluge	No more be (2349)
Birth of Moses—*child*	Delicate (1571)
Age of Methuselah	Bishop (969)
Daniel thrown into the lions' den—*den—pool—water*	Lymph (538)
Sadducees originated—*no resurrection*—	Annuls (250)
Pharisees originated—*washing of hands*	At meal (135)
Birth of Mahomet—*religion*—*spreads*	Leaks (570)
Hegira—*flight—shun*	Chignon (622)

Hegira is the flight of Mohammed from Mecca, July 16th, 622, A.D. The Mohammedans reckon time from this date.

"For God so *loved* the *world*, that he gave his only begotten son, that whosoever *believeth* in Him should not perish, but have everlasting *life*"—John iii. 16.

The following sentences will enable the student to remember the number of times the four words—*love—world—believe—life*—occur in the different gospels. Besides, the plan will suggest how he may deal with similar problems.

	Matthew	Mark	Luke	John	
A LOVE	tune	will	dull	a liege	= 12— 5—15—56
A WORLD	a happy	home	may	equip	= 9— 3— 3—79
BELIEVE	that	dull	heavy	baby	= 11—15— 8—99
LIFE	awoke	her	shy	image	= 7— 4— 6—36

A TABLE OF THE 39 ARTICLES.

The numbers are connected to the titles. This will facilitate the student's endeavor to learn the substance of each article individually. If the student prefers, let him make a series of the titles—leaving out the numbers altogether.

1	Two—*three*—*faith, hope and charity*	faith
2	Noah—*sons*	son
3	May—*go*	going
4	Ray—*raise*—*resurrection*	resurrection
5	Holy	holy
6	Hush—*enough*—*sufficiency*	sufficiency
7	Ago—*long ago*—*old times*	old
8	If—*unbelief*	creeds
9	Be—*begin*—*origin*	original
10	Days—*holidays*—*free*	free-will
11	Did—*acted*—*justly*	justification
12	Tin—*gold*—*good*	good
13	Tame—*work*	works
14	Tire—*overwork*	works of supererogation
15	Tale—*history*—*Christ*	Christ
16	Teach—*example*—*bad*—*sin*	sin
17	Dig—*hidden*	predestination
18	Dive—*strive*—*obtain*	obtaining
19	Top—*spire*—*Church*	Church

20	Nice—*Church council*	authority
21	Not—*many—general*	general
22	Nun—*penance—purgatory*	purgatory
23	Name—*baptism—minister*	ministering
24	Near—*whisper—speak*	speaking
25	Annul—*observe—sacrament*	sacrament
26	Niche—*corner—unknown—unworthy*	unworthiness
27	Neck—*up to the neck—water*	baptism
28	Knife—*cut—bread*	Lord's Supper
29	Nip—*wick—wicked*	wicked
30	Mass—*collection*	of both kinds
31	Mite—*offering—oblation*	oblation
32	Man—*wife*	marriage
33	Mum—*speak—communicate excommunicate*	excommunicate
34	Mere—*tradition*	tradition
35	Mail—*letter—epistle—sermon*	homilies
36	Image—*consecration*	consecrating
37	Make—*power*	power
38	Move—*goods*	goods
39	Map—*course—course—oath*	oath

OLD TESTAMENT SERIES

GENESIS
- birth
- coming in
- going out

EXODUS
- Moses
- Levite

LEVITICUS
- priesthood
- Israelites
- numbering

NUMBERS
- count
- determine on

DEUTERONOMY
- duty
- leader

JOSHUA

son of Nun
none
"judge not"
I.—II. JUDGES
crime
ruthless
RUTH
"beauty"
David
Saul
I.—II. SAMUEL
Lemuel
Solomon
king
I.—II. KINGS
royal enactments
records
I.—II. CHRONICLES
EZRA
ray
straight
bent
knee
NEHEMIAH
nay mamma
woman's name
ESTHER
esteemed friends
"the three friends"
JOB
sorrowful
happy
sing
PSALMS
alms
provide for the poor
PROVERBS
verbs
grammar-school
class
ECCLESIASTES
"preacher"
church
music
SONG OF SOLOMON
good
I say!
ISAIAH
JEREMIAH
LAMENTATIONS
tears
weeping
seeking
EZEKIEL
DANIEL
lions' den
delivered
Hosanna!
HOSEA
sea breeze
bracing
joy
JOEL
jail
amiss
AMOS

animosity
bad
OBADIAH
die
sin
Nineveh
JONAH
whale
big
thin
mica
MICAH
my
name
NAHUM
no home
habitation
HABAKKUK
back
safe
ZEPHANIAH
zephyr
ruffle
haggard
HAGGAI
rebuilding of Temple
ZECHARIAH
Z
last
MALACHI

NEW TESTAMENT SERIES.

The number of chapters in each book is expressed by the words in Italics.

MATTHEW
publican
hatred
wound
knife (28)
cut
MARK
missionary
teach (16)
successful
luck
LUKE
doctor
at hand
near (24)
"beloved"
JOHN
fisherman
net (21)
Christ and His Apostles
THE ACTS
works
hard
enough (28)
more than enough
overflow

Tiber
ROMANS
ancient
old
adage (16)
sage
Periander *
Corinth
CORINTHIANS
Corinthian architecture
roof
thatch (16)
catch
wild-horse
team (13) †
track
galaxy
GALATIANS ‡
Asia (6)
Ephesus
EPHESIANS ‡
effusion
speech
Philippics §
PHILIPPIANS
piano
tune
air (4)
room
roomy
colossal
COLOSSIANS
THESSALONIANS
alone
crowded
hall (5)
house
home (3)
love
honor
"honored of God" ‖
TIMOTHY
timid
sky (6)
overcome
hurrah (4)
joy
sorrow
Destruction of Jerusalem
TITUS

* Periander, one of the Seven Sages of Greece, was despot of Corinth.

† II. Corinthians—13 chapters.

‡ Galatians and Ephesians contain the same number of chapters (6)—so that the same date-word, *Asia*, will do for both. This arrangement will apply to Philippians and Colossians.

§ The "Philippics" were orations of Demosthenes against *Philip*, King of Macedon.

‖ Timothy = honored of God.

tight
confine
hem (3)
hem in
besiege
file of soldiers
PHILEMON *
affection
tie (1)
bandage
bruise
HEBREWS
descendants of Jacob
Adam (13)
sin
punish
"The Just"
JAMES
"The Less"
wane
ill (5)
dangerously
terribly

PETER
"rock"
cave
hollow (5)
hollo
cry
mew (3)
cat
dog
chain
JOHN
inspired
holy (5)
angel
death
die (1)
"in the Lord"
"brother of our Lord"
JUDE
Jewish
law
explanation
REVELATION
known (22)

EXAMINATION PAPER.

1. When was Mahomet born? What do you mean by the "Hegira"?

2. How many times does the word "Love" occur in the different gospels?

3. Give the number of chapters in the four gospels.

* Philemon : affection.

4. "Then shall they say to the mountains, Fall on us, and to the hills, Cover us." Who was the leader of the Roman army when these words of the Saviour were fulfilled in the destruction of Jerusalem?

5. Recite one of the foregoing series forward and backward, and time yourself.

LESSON XIV.

HOW TO COMMIT TO MEMORY PROSE AND POETRY.

FIRST METHOD.—To commit a passage of prose or poetry to memory the first thing to do is to *understand* it. A large class of people utterly ignore this fact. They do not trouble themselves with the comprehension. They deal solely with the *words*, but words are mere symbols and are of no use unless they express a *thought*. Let us not forget that we are not parrots, but intelligent beings.

The author looks upon the words as mere clothing for the thought. The reader should do the same. He should enter into the spirit of the author; and if he will succeed in doing this, he will probably find little trouble with the words. Get the inner thought, and the outward garb will take care of itself. Get the rational memory, and the verbal memory will follow. How often this order is reversed! Indeed, how often the meaning is never reached!

A mere verbal memory gives us no knowledge, but simply the means—the symbols—by which we acquire knowledge. Memory of words merely is worthy of the idiot only. One idiot "could remember the day when every person had been buried in the parish for 35 years, and could repeat with unvarying accuracy the name and age of the deceased, and the mourners at the funeral. Out of the line of burials he had not one idea, could not give an inteiligent reply to a single question, nor be trusted even to feed himself."—*Forbes Winslow.*

There is such a thing as a memory of mere words; there is in this no merit, for it is not beyond the reach of the idiot, and is totally unworthy of intelligent beings. Such a memory unaccompanied by *comprehension* and *judgment* is generally an unmanageable lumber. The child will readily commit to memory a piece of poetry which he does not understand, and if he forgets a word, "he does not think of the meaning of the sentence and of what is wanted to complete it, but 'tries back' over the preceding words, that their *sound* may suggest that of the word he has forgotten." One word will suggest the one before or after by *sound*. Ask the child to multiply 4 by 6. He will have to say to himself 6 times 1=6, 6 times 2=12, 6 times 3=18, then he will answer you 6 times 4=24. It is only time and practice that will enable him to dispense with the necessity of going to the beginning and going over all the mechanical steps. Dr. Leyden, owing to his unusually strong verbal memory, had to do the same thing as the child has to do in his first attempts to learn the multiplication table.

Dr. Abercrombie says:—"The late Dr. Leyden was remarkable for his memory. I am informed, through a gentleman who was intimately acquainted with him, that he could repeat correctly a long act of parliament, or any similar document, after having once read it. When he was, on one occasion, congratulated by a friend on his remarkable power in this respect, he replied, that instead of an advantage, it was often a source of great inconvenience. This he explained by saying that when he wished to recollect any particular point in anything which he had read, he could do it only by *repeating to himself the whole from the commence-*

ment till he reached the point which he wished to recall."

Verbal memory, in a moderate degree, is to be coveted, but unaided by judgment and comprehension it is of very little value. Perfect memory is a combination of the rational and the verbal.

It is all very well to say that we ought to get the meaning of a passage—the ideas first. But how are we to do so? It would be enough for some people to read the passage over slowly and carefully, grasping it as a whole and in its parts. Let each part be considered in itself, yet in its relation to the whole.

In a recent law case in London an old gentleman was brought forward as a witness. Mr. Henry Fielding Dickens, son of the novelist, said that this man's testimony could not be accepted, because he was too old. The counsel on the other side immediately referred to Lord John Russell, Lord Palmerston, Mr. Gladstone, and Emperor William, who was then alive. These aged men had remarkable memories. Thereupon Mr. Dickens replied as follows: "There are a few constellations as well as a myriad of mere twinklers in the aged firmament of intelligence as in the stellar firmament." How are we to get the comprehension of this sentence? First of all, get a clear understanding as to the occasion which gave rise to the eloquent reply. Then notice the comparison, few—myriad, constellations—twinklers, aged firmament of intelligence—stellar firmament. Mr. Gladstone is a constellation. Such are few in number. Your man is a twinkler. There are plenty of them. This thorough understanding of the purpose and meaning of the sentence will probably suffice. The more we understand about it, the better

we will remember it. We forget because we do not understand. Pascal said *that he never forgot anything that he understood.* He does not say anything he read or noted, but *understood.* But surely this is an exaggeration. Pascal would answer "No." Let me for a moment take his part. We find that, when we are grown up and in possession of a moderate amount of intelligence, we do not remember what we do not understand. What we understand better, we remember better. From these premises we may come to the conclusion that if we understood perfectly we would remember perfectly. But alas! our knowledge is, at best, imperfect. If we understood one thing thoroughly we would know everything thoroughly. What do you know about a single object such as a table? What about the wood and its growth? Is there a design in the tree and in nature generally? If there is, what is beyond all this? Carry yourself backward a little, and your own littleness will soon land you upon the desert of ignorance. You are lost amid the mysteries which surround you on every side. The following crude illustration may show how the understanding contributes to readiness in recall. Let the student draw a little diagram.

Let A be an idea located in a certain cell; a, b, c, other cells around. Now suppose I have only casually thought of A, and have formed a relation between it and "*a*" only, by the vibration of the fiber Aa. In a month's time I wish to recall A. I can do so if I happen to come across "a" and set vibrating aA. It is only by striking this chord—this line of thought—I *can* do so, because there is no relation formed between A and any other cell. But the mental detective may be a very

long time before he can find "a," being only one amid an almost innumerable number. It is the same as if you were to go to London and ask for an unknown person. No one can direct you to him because he is unknown. In like manner A is unknown in the brain, a stranger in a foreign land. It has not been introduced to its fellows. No one except "*a*" knows anything at all about it, and therefore cannot tell us where to find it.

Further, suppose I have been thinking a great deal about the idea A—been talking about it to my friends, been looking upon it from all sides, been reflecting upon it, been forming a relation between it and many other ideas, been setting to vibrate Aa, Ab, Ac. In my endeavor to recall A, any of the ideas a, b, c, can tell me where to find it. Before I had formed only one relation; if now I have formed ten, I have ten chances to one; for striking any of the chords aA, bA, cA, will recall to mind the idea A. It is now pretty well known to its neighbors. Each of them can direct me to it. Go to London and ask for Mr. Gladstone, most people will be able to direct you where to find him. He is well known—not at all a stranger.

We find difficulty in reviving an idea, because it is not well known to its fellows in the brain. The more we understand about an idea the more relations we form between this idea and other ideas, and our power of suggestion is thus immensely increased.

The revival of an impression depends, to a great extent, upon its *original* relations—for every idea has its relations. If it is in isolation it is in oblivion. If one idea is originally connected with another in a strong and natural manner, the adhesion will be permanent, and the one will readily suggest the other. If the con-

nection is *at first* unnatural and forced, the tendency of the mind to run in the same groove will oftentimes prevent a new and more natural relationship. This shows the importance of dealing with a subject in a thorough manner the first time we approach it. It is harder to unlearn than to learn. There is danger in superficial acquisition.

The writer has been told by a New York actor just what Dr. Abercrombie heard from a friend:—"A distinguished theatrical performer, in consequence of the sudden illness of another actor, had occasion to prepare himself, on a few hours' notice, for a part which was entirely new to him; and the part was long and rather difficult. He acquired it in a very short time, and went through it with perfect accuracy, but immediately after the performance forgot it to such a degree, that though he performed the character for several days in succession he was obliged *every day to study it anew.* Characters which he had acquired in a more deliberate manner he never forgets, but can perform them at any time without a moment's preparation. When questioned respecting the mental process which he employed the first time he performed this part, he says that he lost sight entirely of the audience, and seemed to have nothing before him but the pages of the book from which he had learned it; and that, if anything had occurred to interrupt this illusion, he should have stopped instantly."

SECOND METHOD.

"Glory is like a circle in the water,
Which never ceaseth to enlarge itself,
Till, by broad spreading, it disperse to naught."

Henry VI.

Learn this by taking one word, phrase or a sentence at a time, preserving the order of the words as given by Shakespeare.

Take at a time as few words as possible without materially destroying the sense. Of course there are phrases which cannot be isolated, conveying meaning only in their relation to the whole.

1. Glory
2. " is
3. " " like a circle
4. " " " in the water,
5. " " " " which never ceaseth
6. " " " " " to enlarge
7. " " " " " " itself,
8. " " " " " " " till, by broad spreading, it disperse
9. " " " " " " " " to naught.

Some, doubtless, will look upon the above as a round-about way of committing anything to memory, especially those who can recite a piece of prose or poetry after one or two readings. But usually these people forget as readily. What they learn is like Jonah's gourd. It comes in a night and it perishes in a night. They do not give time for the registration which depends upon the modification of the brain tissue. The nutritive processes are very active in early age, and this accounts for the readiness with which associations are established. There is a direct relation between nutrition and memory, and *nutrition must have time to do its work.*

This method then will be of use for those who can learn rapidly and forget as rapidly, because it will compel them to dwell upon every word or clause—to pay attention to one thing at a time. The law of attention is—*the more objects we have before the mind the less of our attention each gets; the fewer the objects the more the*

attention. If we confine ourselves to one thing, our attention is undivided.

Besides, the plan will aid those who are inclined to be mechanical in their endeavor to memorize. It will tend to show them the importance of grasping each idea. Many there are who do not trouble themselves with the individual ideas at all. They simply make their attack by brute force upon the whole—getting the jingle. The method, however, will assist the verbal rather than the rational acquisition, though it by no means interferes with the latter.

THIRD METHOD.—"The prime and direct aim of education is to enable man to know himself and the world."—*Matthew Arnold.*

1. The aim of education
2. The prime aim of "
3. The prime and direct aim of "
4. " " " " " " " is to enable man to know
5. " " " " " " " " himself
6. " " " " " " " " and the world.

The order of the author is not preserved, but the object is rather to strip the sentence of all its modifying clauses and to get at the main idea. This requires a little thought. It cannot be done mechanically. It is a great thing to make some people *think.* Then, after getting at the chief point in the sentence, add word after word or clause after clause until you have reconstructed it. Pull the wall to pieces, see what there is inside it, and then rebuild it. This mode will contribute to the acquisition of the meaning and the actual words in which that meaning is expressed. It is a method which many thoughtful people adopt, and is by no means new.

FOURTH METHOD.—The method which Socrates used in teaching was to propose a series of questions to the person whom he wished to instruct. First of all he would cause the pupil to admit some obvious truths, and then deduct others from their relations to those admitted. Hence the term "Socratic teaching" adopted in our schools. This is one of the most powerful means which the teacher has of educating his class, and of ascertaining whether or not he is understood. And the teacher's success will greatly depend upon his ability to ask questions—one question growing out of another, and of such a character that the scholars are made to think for themselves. A question—provided it bears on the subject already referred to, and does not encourage guessing—will arrest the child's attention, and will make him think.

This method is applicable not only to the child, but also to the adult. It is adopted in almost all schools of elocution. Mrs. Anna Randall-Diehl makes free use of it in her "Elocutionary Studies."

1. "*Your fate is but the common fate of all.*"

Learn this sentence by asking a question which will bring out as an answer each of the words—making use, as far as possible even in the question, of the words of the sentence. In the answer we can give the whole sentence emphasizing the exact answer to our question. This will compel the mind to dwell upon every word, one by one. Besides, it means a little thinking. We cannot mechanically ask a question which will elicit a particular answer. It is a somewhat difficult task for some people. They will ask a question, but do not see that that question does not elicit the particular answer

wanted. They will ask one question and answer another. However, it only means a little thought, attention, and practice.

Whose fate is but the common fate of all? *Your* fate is but the common fate of all. What is but the common fate of all? Your *fate* is but the common fate of all. Is there any assertion made concerning your fate? Your fate *is* but the common fate of all. Is your fate anything more or less than the common fate? Your fate is *but* the common fate of all. Is your fate any particular common fate? Your fate is but *the* common fate of all. Is your fate confined to yourself? Your fate is the *common* fate of all. What is your fate (as common to all)? Your fate is the common *fate* of all. Is there a relation between "fate" and "all"? Your fate is but the common fate *of* all. How many share your fate? Your fate is but the common fate of *all*.

2. "*Nature to each allots his proper sphere.*"

What allots to each his proper sphere? *Nature* to each allots his proper sphere. Is there any relation between nature and each individual? Nature *to* each allots his proper sphere. To how many does nature allot a sphere? Nature to *each* allots his proper sphere. What does nature do to each as regards his proper sphere? Nature to each *allots* his proper sphere. Whose proper sphere does nature allot to each? Nature allots to each *his* proper sphere. What kind of a sphere does nature allot to each? Nature to each allots his *proper* sphere. What does nature allot to each? Nature to each allots his proper *sphere*.

3. "*That man lives twice who lives the first life well.*"

What man lives twice? *That* man. Who lives twice? That *man* lives twice. What does that man do twice? That man *lives* twice. How many times does that man live? That man lives *twice*. What word in the sentence refers or relates to man as its antecedent? That man lives twice *who* lives the first life well. What must that man do well with the first life in order to live twice? Who *lives* the first life well. What particular life must he live well? Who lives *the first* life well. What must he live well? Who lives the first *life* well. How must he live the first life? Who lives the first life *well*.

The object is to get the meaning and the exact words of the sentence. We must, therefore, guard against putting in our answer any word which is not in the sentence.

When experts in the method we need not ask a question concerning every word, nor need we repeat the whole sentence in the answer. If, however, we find any difficulty in getting hold of any word, arrest the attention upon it by asking a question about it.

The student will notice that he can confine the answer to a certain word by making use of the other words in the question.

Anything learned by this or any similar method will be retained longer, for the simple reason that the attention has been directed to each idea individually.

The student is requested to learn two of the following exercises by one of the foregoing methods. Let him bring to the rescue the idea of intermediates whenever he finds it necessary.

1. The Poets' Mélange.

Mrs. H. A. Deming, of San Francisco, is said to have occupied a year in hunting up and fitting together the following 38 lines, selected from 38 English poets. If the student wishes to know the name of the author of each line he can join the last important word of the line to the author's name by means of intermediates.

Why all this toil for triumphs of an hour?—*Young.*
Hour, early, Young, life.
Life's a short summer, man a flower.—*Dr. Johnson.*
Flower—jonquil—Dr. Johnson—son—turns out well.
By turns we catch the vital breath and die.—*Pope.*
The cradle and the tomb, alas, so nigh.—*Prior.*
To be is better far than not to be.—*Sewell.*
Though all man's life may seem a tragedy.—*Spenser.*
But light cares speak when mighty griefs are dumb.
Daniel.
The bottom is but shallow whence they come.
Sir Walter Raleigh.
Your fate is but the common fate of all.—*Longfellow.*
Unmingled joys here to no man befall.—*Southwell.*
Nature to each allots his proper sphere.—*Congreve.*
Fortune makes folly her peculiar care.—*Churchill.*
Custom does often reason overrule.—*Rochester.*
And throw a cruel sunshine on a fool.—*Armstrong.*
Live well, how long or short, permit to Heaven.
Milton.
They who forgive most, shall be most forgiven.
Bailey.
Sin may be clasped so close we cannot see its face.
Trench.

Vile intercourse where virtue has not place.
Somerville.
Then keep each passion down, however dear.
Thomson.
Thou pendulum betwixt a smile and tear.—*Byron.*
Her sensual snares let faithless pleasures lay.
Smollett.
With craft and skill to ruin and betray.—*Crabbe.*
Soar not too high to fall, but stoop to rise.—*Massinger.*
We masters grow of all that we despise.—*Cowley.*
Oh, then, renounce that impious self-esteem.—*Beattie.*
Riches have wings and grandeur is a dream.—*Cowper.*
Think not ambition wise because 'tis brave.
Sir William Davenant.
The paths of glory lead but to the grave.—*Gray.*
What is ambition? 'Tis a glorious cheat.
N. P. Willis.
Only destructive to the brave and great.—*Addison.*
What's all the gaudy glitter of a crown?—*Dryden.*
The way to bliss lies not on beds of down.
Francis Quarles.
How long we live, not years but actions tell.
Watkins.
That man lives twice who lives the first life well.
Herrick.
Make, then, while yet you may, your God your friend.
William Mason.
Whom Christians worship, yet not comprehend.
Hill.
The trust that's given, guard, and to yourself be just.
Dana.
For live we how we can, yet die we must.
Shakespeare.

2. Poetical Gems.

The following gems, old though they may be, ought to find a place in the memory of all, especially the young. Let each student learn them that he may say with John Hunter—"My mind is like a bee-hive; but full as it is of buzz and apparent confusion, it is yet full of order and regularity and food collected with incessant industry from the choicest stores of nature."

An honest man 's the noblest work of God.

Pope's Essay on Man.

There's a divinity that shapes our ends,
Rough-hew them how we will.

Hamlet.

There is some soul of goodness in things evil,
Would men observingly distill it out.

Henry V.

How far that little candle throws his beams!
So shines a good deed in a naughty world.

Merchant of Venice.

Order is Heaven's first law, and this confest,
Some are, and must be, greater than the rest.

Essay on Man.

To thine own self be true;
And it must follow, as the night the day,
Thou canst not then be false to any man.

Hamlet.

Loveliness
Needs not the foreign aid of ornament,
But is, when unadorned, adorned the most.

Thomson's Seasons.

Vice is a monster of so frightful mien,
As, to be hated, needs but to be seen;
Yet seen too oft, familiar with her face,
We first endure, then pity, then embrace.

Essay on Man.

Good name in man and woman
Is the immediate jewel of their souls.
Who steals my purse steals trash; 'tis something,—nothing:
'Twas mine, 'tis his, and has been slave to thousands;
But he that filches from me my good name,
Robs me of that which not enriches him,
And makes me poor indeed.

Othello.

3. Definitions.

No attempt has been made to arrange the following definitions or the foregoing poetical gems. The student may do this in his own way; or he may learn them in the order given, connecting one with the other by means of intermediates.

Consciousness is the immediate knowledge which the mind has of its own acts and states.

Attention is concentrated consciousness.

Sensation is an affection or mode of the conscious mind.

Perception is knowledge of the outside world derived through the senses.

Memory is the ideal revival, as well as the recognition, of a past circumstance in our experience.

Genius is an infinite capacity for taking pains.

Thomas Carlyle.

Philosophy is the account which the human mind gives to itself of the constitution of the world.—*Emerson.*

Moral truth is harmony between expression—word or symbol—and thought.

Logical truth is harmony between our successive thoughts as they relate to the same object.

Real truth is harmony between our thoughts and things—between the things as *presented* to us in the course of experience and our *representation* of them.

The closing paragraph of Lincoln's inaugural address:—

"I am loath to close. We are not enemies, but friends. We must not be enemies. Though passion may have strained, it must not break our bonds of affection. The mystic chords of memory, stretching from every battle-field and patriot grave, to every living heart and hearthstone, all over this broad land, will yet swell the chorus of the Union, when again touched, as surely they will be, by the better angels of our nature."

Examination Paper.

1. What is the key to success in committing to memory a piece of prose or poetry?
2. Explain the terms "rational" and "verbal" memory.
3. "The more we understand about a subject the better we remember it." Comment upon this.
4. "The *first* acquaintance with a subject is an important one." Comment.
5. "Those who learn readily may forget readily." How do you explain this, and what remedy can you suggest?
6. Define "attention" and give the law.
7. What is meant by the term "Socratic teaching"?

What advantage is there in asking a question which will elicit as an answer every word in the sentence?

8. How can we assist ourselves to join together the different passages or to connect the passage to the name of the author?

LESSON XV.

THE PERUSAL OF A BOOK.

THERE are many ways in which we may read a book, but many of them lead but to forgetfulness. Indeed, we read many things which we do not wish to remember. We are oftentimes fully conscious that we cannot hope to retain *all* we read. We are bewildered with the multiplicity of reading matter—daily, evening, weekly papers, magazines, novels, books innumerable.

The business man has few minutes per day to devote to all this. He takes up his morning paper and gets a smatter of it. He does not stop to realize what he has read, but he contracts a habit which adheres to him—a habit of skimming. When he takes up a book, which means time, care, and thought, he goes on in his usual way of reading to forget. This skimming has proved so disastrous to some that they have abandoned all newspaper reading. Others adopt a selecting method—reading only what they consider of interest and value, and disregarding the trash. The truth is, we try to do too much. Our energy is expended over too wide a field. Civilization brings with it its disadvantages as well as its advantages. Savages have far better memories than we. Missionaries tell us that there are tribes along the Zambezi River in the southeast of Africa which are in the habit of relying upon their memories. They can remember to-day contracts made ten years ago. Their memory is their record book, and on this they rely. *Memory likes to be trusted.* The more we trust it the more reliable we

find it. We should not tax our minds with every passing trifle, but it is a well-known fact that those who habitually enter in their note-books all their engagements find that they are substituting paper for memory. You say writing adds to the impression. True, writing with the view to be exact and to remember is decidedly a good habit. But entering anything in your note-book is usually accompanied with the consciousness that the record is there and that you need not trouble about it. This is a pure substitution of paper for the mental effort to impress the fact in question upon the mind. This habit, if carried to extreme, will become a vice. The brain will become rusty, inactive, and unworthy of trust.

The age of Homer has passed away and with it the profession and sacredness of the minstrel. It is difficult for us, in this age of writing and printing, to picture to ourselves that old bard traveling up and down the hills and valleys of Greece, and carrying with him, not in his pocket, but in his active brain, that unparalleled epic "that shall never die." Yet so it was, for it must be borne in mind that the *Iliad* and the *Odyssey* were sung before the art of writing was known. Compare the memory of this old bard and father of all known poetry with that of our poets. Alas, alas, what a difference! And why? Homer trusted his memory. Our poets have no faith in theirs. This is an age of distrust. But surely we should trust our own memories —our very self.

We have seen how we are to read to forget. How are we to read to remember? Take up the book and collect your thoughts from the four winds. Read the first chapter thoughtfully and carefully. Then close

the book and give in your own words, in a neat and methodical manner, the substance of that chapter. Make a condensed abstract of it. Understand it—make it your own first—then express it in your own language. Let this be done in a condensed form. All have not the power of condensing. Some can expand. Give them an idea and they will talk about it—beat about the bush. All are not able to put in a nutshell the pith of what they have read. For these people the practice of making an abstract will be useful in itself.

How often do we find that one can read a page of a book without being able to give a single idea of the contents of that page? How do you account for this result or rather no result. The mind of the reader may be elsewhere at the time. If so, how can he reasonably expect to grasp the meaning of the author? There may be another reason. The mind is not able to see what the author is aiming at—to get at the pith, the substance—not able to distinguish the essential from the unessential, the wheat from the chaff—not able to make an *abstract*. Every word seems equally important. The judgment is not brought to play. If we are to read intelligently, we must make a mental synopsis of what we read. If we have not the time to write this abridgment, let us reflect upon it. Read a chapter, then close the book and examine yourself. What is the main idea in that chapter? What do I know about it? What does the author mean? If possible discuss the matter with your friends. The expression of the meaning in language will contribute to definiteness of thought. Soliloquize if you cannot get anybody to listen to you.

The following paragraph from Abercrombie will corroborate what has been just said:—"Attention and memory are greatly promoted by writing on a subject, especially if it be done in a *distinct and systematic manner*: also, by conversing on the subject, and by instructing others in it. These exercises, indeed, may perhaps be considered rather as aids to attention, or a clear comprehension of the subject, than to memory; for in regard to memory, it is remarkable how much its power is increased, in many instances, by that kind of exercise by which it is alone trusted to, without any aid from writing. I have known medical men, for example, who had to recollect numerous appointments, do so with *perfect accuracy by trusting to memory*, to which they had habituated themselves, but blunder continually when they kept a written memorandum. The mental power which is in some cases acquired by constant and intense exercise is indeed astonishing. Bloomfield, the poet, relates of himself, that nearly one-half of his poem, the 'Farmer's Boy,' was composed, revised, and corrected without writing a word of it while he was at work with other shoemakers in a garret."

If you are dealing with a special book—a book which you want to master once for life—it would be well to supplement your synopsis by a series containing few of the main ideas. This will enable you to familiarize yourself with these ideas—the backbone of the whole book.

The following is a short sketch of the life of SOCRATES, the great Grecian sage—a life in which no one can fail to be interested. Let the student thoroughly master it. If he has a book containing an account of the philosopher's life, let him make his own

abstract before reading this. Otherwise let him make a synopsis of this sketch, cutting it down still more.

SOCRATES
tease
not all peace
ALOPĔCÉ
clope
love
Worship (469)
idol
statue
SCULPTOR
engraver
grave
cry
CRITO
rich
potentate
POTIDÆA
pretty dear
love-letter
writer
XENOPHON
SENATOR
speech
long
epistle
EPISTATIS
chief
argument
ARGINUSÆ
see

Socrates was born at *Alopécé* in *469 B. C.* Sophroniscus, his father, was a *sculptor;* Phænarĕté, his mother, a midwife. He was brought up to the trade of his father and was not unsuccessful—his statues of the Graces being placed in the citadel at Athens. His leisure hours, however, were employed in the study of philosophy. This was observed by *Crito*, a rich philosopher of Athens, who intrusted to him the education of his children. Socrates now left his business and, under eminent masters, became proficient in every kind of knowledge which the age could afford.

In the struggle between Athens and Sparta he distinguished himself at the siege of *Potidæa* for valor and hardiness. After an attack, several years later, upon the Bœotians at Delium, he coolly retired from the field, saw *Xenophon* lying wounded on the ground —took him on his shoulders, and bore him out of the reach of the enemy.

When upward of sixty years of

light
sticks
STYX
river
ocean
fleet
ADMIRALS
training
TEACHER
wise
WISEST OF MEN
wiser than man
God
DIVINE VOICE
voice
suppressing
DISSUASIVE
persuade
subtlety
SOPHISTS
captious
capture
war
WARFARE
fair
woman
Anne
ANYTUS
MELETUS
leather-seller
leather
tough
ARISTOPHANES

age he became a *Senator*—one of the 500 elected from the 10 tribes. For 35 days the members of each tribe in turn had the presidency and were called Prytanes. Of the 50 Prytanes 10 had the presidency every seven days; and each day one of the 10 enjoyed the highest dignity with the title of *Epistatis*. Socrates had this power for one day—the very day on which the Admirals were tried for neglecting to bury the dead after the battle of *Arginusæ*, a sacred duty which was not performed owing to the storm that followed. The shades of the unburied were believed to wander restlessly for a whole century on the bank of the *Styx*. To condemn all by one vote was illegal. The Prytanes refused to put the question to vote. The people grew furious. The assembly wavered. Socrates alone stood firm and defied the threats of the mob. At the next meeting the *Admirals* were condemned. During the tyranny that followed, Socrates never ceased to uphold the rights of his fellow-citizens. But he was above all a philosopher and a moral *teacher*—making every place a school of instruction. He

fan
wind
THE CLOUDS
mountain
Mt. Olympus
Jupiter
DEITIES
protection
OWN DEFENSE
plead
pray
PRYTANEUM
town hall
large
deal less
DELOS
moss (30)
humid
wet
SLIP
easily
ÆSCULAPIUS
recovery
sickness
mopish (396)

talked with any one—young or old—rich or poor—who sought to address him. His conversation was engaging, instructive. He was a terrible antagonist in argument, for in his usual way of teaching by questions he led his opponent into a web from which he could not extricate himself. His logic was irresistible, yet he did not profess to know anything. The oracle of Apollo at Delphi declared he was the *wisest of men*. With this statement he was greatly puzzled. To convince himself of its truth he went to the various wise men, but each time with this result:—"When I went away I said to myself, 'I am wiser than this man; for neither of us, it seems, knows anything valuable; but he not knowing, fancies he does know; I, as I really do not know, so I do not think I know. I seem, therefore, to be in one small matter wiser than he.'"

This wisdom was in a measure due to the "*Divine voice*" which accompanied him from his childhood. He himself was accustomed to speak of this *attendant spirit* publicly and familiarly. Its advice was always *dissuasive*, "never impelling," says Cicero, "but often restraining him." His *genius* advised him, and when he felt no check he assumed that the course he was about to take was the right one.

At this time the leading men were the *Sophists*, who pretended to teach everything. With these Socrates carried on perpetual *warfare*—refuted their principles and exposed their ignorance. This pleased the Athenians. But he had a private quarrel with *Anytus*, an orator by profession, whose sons had been placed under his care. They were taken away and put to the trade of leather-selling because they could not procure a living by pleading. The philosopher exposed Anytus for such treatment of the young men. Anytus studied means of revenge, consulted *Meletus*, a leather-seller, and *Aristophanes*, the comic poet, who ridiculed Socrates and his doctrines in the celebrated comedy "*The Clouds*." At the acting the great man stood up in a conspicuous part of the theater. He was asked whether he was vexed. "Not at all," answered he, "I am only a host at a public festival, where I provide a large company with entertainment." Few years later his enemies preferred the following bill against him: "Meletus, the son of Meletus, a Pythian, accuses Socrates, son of Sophroniscus, an Alopecian. Socrates violates the law, *not believing the deities* which this city believes, but introducing other new gods. He violates the law likewise in corrupting youths; and the punishment is death." Socrates made his *own defense* not in a tone of guilty person, but with freedom and consciousness of innocence and merit. He was condemned and fined 30 minæ (mina = £3 or $14). Socrates said that instead of being condemned he deserved to be maintained in the *Prytaneum* at the public expense. This enraged his judges and sentence of death was passed.

His closing speech is well worth quoting:—

"Had you, O Athenians, waited for a short while, the

thing would have come to pass without your agency; for you see my years. I am far advanced in life and near to death. I do not address this to all of you, but to those who have voted for the capital sentence; and this also I say to the same persons. Perhaps your opinion is that I have been condemned for want of skill in such modes of working on your minds as I might have employed with success, if I had thought it right to employ all means in order to escape from condemnation. Far from it. I have been condemned not for want of things to say, but for want of daring and shamelessness, because I did not choose to say to you what would have been pleasantest for you to hear, weeping and lamenting and saying and doing other things which I affirm to be unworthy of me as you are accustomed to see others do. But neither did I then think fit to do or say anything unworthy of a free man; nor do I now repent of having thus defended myself. I would far rather have made the one defense and die than have made the other and live.

"Neither in a court of justice nor in war ought we to make it our object that whatever happens we may escape death. In battle it is often evident that a man may save his life by throwing away his arms and imploring mercy of his pursuers; and in all other danger there are many other contrivances by which a person may get off with life, if he dare do or say everything. The difficulty, O Athenians, is not to escape from death, but from guilt; for guilt is swifter than death and runs faster. And now I, being old and slow of foot, have been overtaken by death, the slower of the two; but my accusers, who are brisk and vehement, by guilt, the swifter. We quit this place; I having

been sentenced by you to death, but they having sentence passed upon them by truth of guilt and injustice. I submit to my punishment, and they to theirs.

"But I desire, O men who have condemned me, to prophesy to you what next is to happen. I say, then, that immediately after my death there will come upon you a far severer punishment than that which you have inflicted upon me; for you have done this, thinking by it to escape being called to account for your lives. But I affirm that the very reverse will happen to you. There will be many to call you to account whom I have hitherto restrained, and whom you saw not; and being younger, they will give you more trouble and you will be still more provoked, for if you think by putting men to death to prevent others from reproaching you with living amiss, you are much mistaken. That mode of protecting yourselves is neither very possible nor very noble; the noblest and easiest, too, is not to cut off other people, but so to order yourselves as to attain the greatest excellence. Thus much I beg of you; when my sons grow up, punish them, O Athenians, by tormenting them as I have tormented you, if they shall seem to study riches or any other ends in preference to virtue. And if they are thought to be something, being really nothing, reproach them as I have reproached you for not attending to what they ought, and fancying themselves something when they are good for nothing. And if you will do this, both I and my sons shall have received what is just at your hands.

"It is now time that we go hence, I to die, you to live; but which has the better destiny is unknown to all except the God alone."

On the day of condemnation, the ship which carried the customary offering to the island of *Delos* set sail. This delayed the execution 30 *days*, as it was contrary to law to inflict capital punishment during this voyage.

He was often solicited to escape from prison. This suggestion he derided.

The manner of his death is perhaps the most affecting picture of antiquity. That day he discoursed with his friends on the immortality of the soul. Crito asked if he had any direction to give concerning his sons and other things.

"I desire no more of you," said Socrates, "than what I have always told you: if you take care of yourselves, whatever you do will be acceptable to me and mine, though you promise nothing; if you neglect yourselves and virtue, you can do nothing acceptable to us, though you promise ever so much."

"But how will you be buried?"

"As you think good," said he, "if you can catch me and I do not give you the *slip*."

Then with a smile, turning to the company, "I cannot persuade Crito," said he, "that I am that Socrates who was haranguing just now, or anything more than the carcass you will presently behold; and therefore he is taking all this care of my interment. It seems that what I just now explained in a long discourse has made no impression at all upon him, namely, that as soon as I shall have drunk the poison, I shall not remain longer with you, but depart immediately to the seats of the blessed. The things with which I have been endeavoring to comfort you and myself have been said to no purpose. As, therefore, Crito was bound to the judges for my appearance, so you must now be bound to Crito

for my departure. And when he sees my bod
and buried, let him not say that Socrates su
thing, or is in any way concerned; for know, d
such a mistake were a wrong to my soul. I
that my body only is buried; and let that be
you think fit, or as shall be most agreeable to
and customs of the country."

The philosopher said to the man that br
fatal cup, "Prithee, my good friend, as
versed in such things, what must I do?"
said the man, "but walk about as soon as you
have drunk till you perceive your legs to fail, then
down."

He then asked "whether he might spill any of it
libation?"

The man answered, "I have prepared only what is sufficient."

"Yet," said Socrates, "I may pray to the gods, and will, that my passage hence may be happy, which I do beseech them to grant." That instant he swallowed the draught with the greatest ease. Those who were present burst into tears. "Friends," said Socrates, "what mean you? I sent away the women for no other reason but that they might not disturb us with this, for I have heard that we should die with applause; be quiet, then, and behave yourselves like men." Soon afterward the executioner pinched his feet and asked if he perceived it. "No," was the answer. Not long after this the sage removed the garment with which he was covered and said, "I owe a cock to Æsculapius: pay it; neglect it not." These were the last words of Socrates, the best, the wisest, and the most just of men.

Æsculapius was the deity to whom sick persons made

a sacrifice on their recovery. Socrates died, according to Plato, when he was more than 70, in the year 396 B. C. He had two wives, one of whom was the noted Xantippe, whom Aulus Gellius describes as an arrant scold. Several instances are recorded of her impatience and his long-suffering. One day, before some of his friends, she fell into the usual extravagance of her passion. He answered not a word, but went out with his companions. He was no sooner out of doors than she, running upstairs, threw water down upon his head. "Did I not tell you," said he, "that after so much thunder we should have rain?" She appears, however, to have had a great affection for him, and was a faithful wife.

Her husband gave a playful explanation of his choice by remarking that "those who wished to become skilled in horsemanship select the most spirited horses, and after being able to bridle those, they believe they can bridle all others. Now, as it was my wish to live and converse with men, I married this woman, being firmly convinced that in the event of being able to endure her, I should be able to endure all others."

The series is made up of few of the leading words in the abstract—the object being to help the mind to familiarize itself with the main points. This would be of great service to a young man in his preparation to address a debating society, and to the public speaker generally. Let him read extensively concerning the subject in question, exercising his own judgment as to the selection of matter. Then let him make a compact abstract and make himself master of the chief ideas; for if with these he can deal with readiness, ease, and confidence, he cannot go very far out of the way. This

the pulpit orator must do if he wishes to reach the hearts of his hearers. There are several modes of preaching in our days. Some adopt the *memoriter* style. No doubt this has its advantages, especially to the beginner. But the speaker becomes mechanical. There is no soul in the work. His attention is directed to himself and not to the audience. Besides, if anything happens to interfere with his memory, the result may prove unpleasant. Others *read* their sermons. They confine themselves to their notes, and are not in unison and sympathy with their audience. Some, it is true, can read and yet seem to have command over their hearers. As a rule the result is not satisfactory. People do not like it. The speaker derives sympathy and encouragement from the eye of the listener. Of this he is deprived if he confines himself to paper. The listener also should do his part by looking into the eye of the lecturer, for attention means the actual directing of the eyes toward the object. You cannot listen to the preacher while looking listlessly all over the building. How many there are who wish to remember a sermon but contribute very little toward that end! Dr. David Ferrier says:—"The physical expression of rapt attention is that of intent gaze, with the eyes accommodated to near or distant objects, and associated with such movements of the head as serve to bring the object on the punctum centrale of the retina. These facts indicate that intellectual attention is essentially ideal vision, and that when we are engaged in attentive ideation we are making precisely the same movements of the head and eyes as are necessary for clear actual vision. Though many individuals when engaged in deep thought close their eyelids in order to keep out dis-

tracting images, the eyes themselves maintain the position of actual gaze, near or distant, according to the nature and position of the ideal object. When we think of a large or distant object the eyes are divergent or parallel; when we think of a small or near object the optic axes converge."

The most satisfactory mode of dealing with a sermon or a speech is probably the thorough familiarity with the headings or main points—leaving the filling in to take care of itself as far as possible. This will give opportunity to the speaker to put himself in the work at the time. He is not in any way restricted. One of the chief London divines said on one occasion, "Before going to my pulpit I know what I mean to say, but I do not know how." The *what* he knows, but not the *how*. The main points which he means to present to his congregation have been a subject of forethought. But he does not know the exact language he will use. He takes care of the thoughts and he leaves the language to take care of itself. Of course if the preacher in his study clothes his thoughts in a certain language, the tendency will be for the same thought to clothe itself in the same language when he is in his pulpit. Hence the advantage of writing out the whole sermon in the preparation, but not depending upon this writing in the delivery. The fact that the sermon has been written should be utterly disregarded and the main ideas firmly grasped and held before the mind.

The public speaker, then, is advised to deal with his speech something after the fashion in which the account of Socrates' life has been dealt with. If the first attempt is not very satisfactory, let him not be discouraged. It is not always easy to acquire a new habit.

It is still more difficult to unlearn. It is only by strenuous efforts that an old habit can be uprooted.

In the foregoing exercise chief words have been connected together by intermediates. Let this little series be learned and recited once per day for a week.

Examination Paper.

1. What effect has newspaper reading upon your memory?

2. "Memory likes to be trusted." What is your experience with regard to this matter?

3. Where and when was Socrates born?

4. Can you prove from his own words that Socrates believed in the immortality of the soul? When did he die? Give his last words.

5. Write out a short abstract of Socrates' life from the material given in the foregoing sketch.

LESSON XVI.

(*Optional.*)

MUSIC.

Music is a subject which must be approached by the unassisted natural memory, and must be left to him who has music in his soul. Still in this branch of knowledge as in all others we can accomplish a great deal by perseverance and practice. But if it is not natural to us, it is an art in which we can very readily become mechanical. Nowhere is organic memory more perceptible than here. The memory of instrumental music sometimes seems to rest in the fingers alone, for there are many who can play correctly a complicated piece and yet be engrossed in conversation at the time. "A young lady" mentioned by Dr. Darwin "executed a long and very difficult piece of music, with the utmost precision, under the eye of her master; but seemed agitated during the execution of it, and when she had concluded burst into tears. It turned out that her attention had, during the whole time, been *intensely* occupied with the agonies of a favorite canary bird which had dropped dead in its cage."

I have in my possession a letter in which a friend gives the following experience:—

"I frequently improvise and read at the same time, as when doing so I seem to feel more keenly the interest of the story or poem, and on the other hand often find that I have greater facility in 'thinking music,'—many progressions unthought of before coming to me

under the influence of the story as it develops itself. The time I speak of I was reading the *Century*, and finding a story that would 'play well,' I went to the piano, and began reading with an extempore obligato on the piano. My wife, wishing to see how nearly music could interpret prose, listened carefully, and at the close of the story gave a very satisfactory, though of course quite general, idea of its character. As she was not acquainted with the tale it is but fair to conclude that music may to some minds, and to a limited degree, serve as a vehicle for thoughts represented by words."

In any case this problem is interesting, viz.: "How can a brain think in two directions at once and perform the double act with an elation of spirit unusual to it ordinarily?"

Music at first, however, requires a considerable amount of attention, unless, of course, the talent for it is hereditary. The second method suggested as an aid for the learning of prose and poetry will similarly prove an aid for the arresting of the attention upon each note individually and in order. Take the first bar. Play it once, concentrating the attention upon the *first* note. Play it again, dwelling particularly upon the *second* note. Go through the whole bar in this manner, dwelling upon each note in its turn, relaxing the attention as to the rest. Then the whole piece could be taken, paying particular attention to the *first* bar the first time, and the *second* bar the second time. Such a method as this will secure the concentration of mind upon each note, bar, or phrase individually. Now and again intermediates will help even in music. Take an example: The ballad "ONCE AGAIN" was written

by L. N. Lewin. The music was composed by Arthur Sullivan in the key of F.

"Once Again"—*repetition—familiarity—contempt*—Fie.

The word *fie* begins with F. This will enable us to remember that "Once Again" is written in the key of F.

Anything that encourages the development of intelligence will assist the memory. F in itself is a mere sound. Aided by i and e it forms a word which expresses a thought. A word is more manageable than a letter. A sentence is still more easily grasped, and here we find the secret of the value of such phrases as the following:

GooD AlE and BeeF.

Read the above phrase forward and you have the sharps. Take it backward and you will get the flats. Thus G is the key of one sharp, D of two sharps, A of three sharps, E of four sharps, B of five sharps, F sharp of six sharps.

Again, F is the key of one flat; B flat of 2 flats; E flat of 3 flats; A flat of 4 flats; D flat of 5 flats; G flat of 6 flats.

C has neither sharp nor flat; C flat has 7 flats; C sharp 7 sharps.

These few hints may point out to the student how he may assist himself. Above all let him possess a good concentration, which, coupled with perseverance and practice, will enable him to do wonders.

Examination Paper.

1. Have we any reason to think that taste for music is mostly hereditary?

2. Certain actions requiring great attention at first become by repetition almost unconscious. Comment upon this remark.

3. What method is in this lesson suggested for the memorizing of music? What is the principle of this method?

4. In what key is "Once Again" written?

5. Give the sharp and flat keys. "Letters are more manageable when embodied in a word, phrase or sentence than when in isolation." Is this your experience?

LESSON XVII.

(*Optional.*)

CHEMISTRY.

NONE knows better how to apply some of the principles contained in the foregoing lessons than the student himself. It is he alone who knows wherein he requires assistance—at least as far as memory is concerned. In no branch of science is a good teacher more appreciated than in chemistry. If the teaching is inferior the beginner will soon acquire a distaste for the subject. On the other hand, the subject can be made very interesting by progressive experiments and lucid explanations.

If necessary, let the pupil adopt some such plan as the following:

Let the first letter of the formula word be the initial letter of the name of the element, and the last consonant represent the number of atoms of that element in the molecule.

Water = hydric oxide = O_1 H_2 = O H_2 = OffereD HoNey; O = oxygen, d = 1, H = hydrogen, n = 2.

Water—*offered*—offered honey.

Ammonia = hydric nitride = N H_3 = NeaT HoMe.

Ammonia—*washing*—neat home.

Lime = calcic oxide = CaO = CalleD OuT.

Lime—*burn*—*scream*—called out.

Of course the student will soon discover whether this or any similar method will assist him in his work.

At present there are known at least 64 elements,

divided into metals and non-metals. The following series consists of the 13 non-metallic elements—arranged alphabetically—together with their atomic weights.

The atomic weights are expressed by the consonants of the words in italics. If there are two words the latter expresses the decimal.

BORON
born
died (11)
Dead Sea

BROMINE *
brōmos
unpleasant
rice (80)
black
soot

CARBON
bone
meat
dine (12)
salt

CHLORINE
glory
popularity
correspondence
mail all (35.5)
express
spur
spar

FLUORINE
flew
high
top (19)
clouds
hide the sun

HYDROGEN
generate
make
tea (1)
price
money
I owe

IODINE
medicine
tonic (127)
quinine

NITROGEN
odorless
odor (14)
beastly
Priestley

OXYGEN
water
ditch (16)

* Bromine is found abundantly in the Dead Sea.

fosse	lawful
PHOSPHORUS	full
light	abundant *
dark	SILICON
myth (31)	silly enough
real	*enough alloy* (28.5)
estate	tarnish
sell	sully
SELENIUM	SULPHUR
umbrella	flowers of sulphur
protection	flowing
keep a law (79.5)	*mane* (32)

If necessary let the student make a similar series of the metal elements.

Examination Paper.

1. What method may be adopted in learning chemical formulæ?
2. What is the formula of lime or ammonia?
3. Give the formula of common salt.
4. Give the atomic weight of Carbon—Hydrogen—Nitrogen—Oxygen.
5. Recite forward and backward the non-metal series and time yourself.

* Silicon is believed to form about one-sixth of the earth's crust.

LESSON XVIII.

(*Optional.*)

GEOGRAPHY.

We readily forget our Geography and even our History. This is partly due to the manner of teaching in our schools. These subjects are dealt with as an aggregate of *isolated* facts. But it is not natural for the mind to deal with isolated facts. It is our nature to associate—to group together. This seems to indicate that History and Geography should be taught not in themselves but in their relation to each other,—and no lesson should be given without constant reference to the atlas. The child should *see* the position of a certain town related to the position of others and should associate with it historical facts. The relation, if any, between the geographical position and the historical incidents should be pointed out. Let the child see the *where* and the *why* in their relation one to the other. It is the teacher's duty to point out the unity in what appears to the child to be a chaos of isolated facts—"breathe upon the dry bones."

Still, in these subjects the practice is not quite so easy as the theory seems to indicate. This difficulty will always remain, owing to the frequent occurrence of figures and names which convey little or no meaning.

Now and again we may help ourselves by the usual method of expressing figures in words.

Below are given the longest river, the highest mount-

ain, and the largest lake in each of the continents. Authorities differ considerably, so that the student need not be surprised if he finds that these figures do not agree with those to which he has access.

Europe—	
Volga—*volley—noise*	notices (2,100 m)
Mont Blanc—*blanc mange*	daily feeds (15,810 ft.)
Ladoga—*lad—ashame*	he shames us (6,300 sq. m.)
Asia—	
Yank-tsi-kiang = "*son of the ocean*"	much seas (3,600 m.)
Mount Everest—*highest*	nob (29,000 ft.)
Caspian Sea—*see—look at*	a dunce is so wise (120,000 sq. m.)
Africa—	
Nile	rises so (4,000 m.)
Mt. Kilimanjaro—*jar—vase—pretty*	how nice he houses us (20,000 ft.)
Victoria Nyanza	20,000 sq. m.
America—	
Mississippi—"*great river*"—*rushes*	roars so (4,400 m.)
Aconcagua—*acorn—field*	know my paths (23,910 ft.)
Lake Superior—*man*	a man's eye is his (32,000 sq. m.)
Australia—	
Murray—*man's name—he*	he misses us (3,000 m.)
Mt. Cook—*book—read—silent*	dumb nieces (13,200 ft.)
Alexandrina—*drain—exhausted*	no game (273 sq. m.)

In the following examples no device is adopted to indicate whether the latitude is north or south and the longitude east or west. We ought to know from our atlases whether a certain town is north or south of the equator, and east or west of a meridian passing through Greenwich. If we do not know this it is hardly worth our while to trouble with this exercise at all.

If there are *two* words, the former indicates the degrees of latitude and the latter the degrees of longitude. When there are *four* words which have a figure equivalent, the first gives the degrees of latitude, the second word indicates the number of minutes, the *third* the degrees of longitude, and the *fourth* the minutes.

London—*metropolis—enlightenment*	Light made us whole 51° 31′ N.—0° 5′ W.
New York—*bustle*	Arise, roar, why care so, 40° 44′ N.—74° 0′ W.
Paris—*frequented—arrive*	Arrive always in night 48° 50′ N.—2° 21′ E.
Melbourne—*far—travel*	Among a railway terror live 37° 45′ S.—144° 58′ E.
Berlin—*philosophy—private study*	Alone he made a dime anon 52° 31′ N.—13° 22′ E.

Examination Paper.

1. "History and geography ought to be taught in their relation one to the other." Give reasons.

2. Point out some of the difficulties in dealing with these subjects.

3. Give the length of the longest river in each of the continents.

4. What is the height of the highest mountain in the world?

5. What method is suggested to represent in words latitude and longitude?

LESSON XIX.

ANSWERS TO OFT-REPEATED QUESTIONS.

Some of these questions are practically answered elsewhere in this book; but they are of such general interest that they require separate consideration.

1. "You tell me how to *remember*, but there are many things which I wish to *forget*. How am I to do this?"

This may be answered in a negative form. Rather than telling you what to do, let me tell you what not to do. Let not your mind dwell upon the ideas or groups of ideas which you wish to forget, but direct it to other channels. If we keep the mind continually upon the same ideas, the fibers concerned must be continually vibrating. To make good the waste there must be a free circulation of blood in this part, doubtless at the expense of the supply in other parts, and the impress is deepened. This excessive and continuous use of the same fibers may result in irritation, pain, melancholy or insanity. Hence the necessity of diversion. If, then, you wish to forget anything, direct the nerve force into other regions of the brain. Each time you will succeed in doing this will add to your strength to do it again. Soon the ideas to be forgotten will be covered over with the cobweb of neglect. Read an interesting book, call upon an entertaining friend, take a walk in the open air, and enjoy the beauty of nature – anything of a legitimate nature to secure the banishment of the unwelcomed idea.

2. "I frequently forget where I have put my things,

and I have to hunt and hunt before I find them. How am I to relieve myself of this trouble?"

It is only a few days ago that a gentleman complained to me that that very morning he had wasted a whole hour in looking for his watch. After all he found it under the pillow. My reply was: "You mechanically and unconsciously put that watch under the pillow. Next time you put away your watch for the night tell yourself 'that watch is there, and I mean to remember that it is there and nowhere else.' The result will be that in the morning you will have no trouble to find your watch." If you lock a door in a mechanical manner, thinking of something else all the time, you will probably have to go back to ascertain whether or not you have locked it. What an economy of time and labor it would be if we kept our minds at home and did thoroughly and attentively whatever we are engaged in! Inability to recall where we have placed a certain article is the result of inattention. The impression does not rise to consciousness.

The husband on leaving in the morning is asked by the wife to do some shopping for her. In the evening he finds himself in trouble, having entirely neglected his duty. Why? Simply because his mind has been so much occupied with other ideas that the wife's request had no chance to assert itself.

3. "Reciting a series causes me to sleep. How do you account for this?"

Wakefulness is sometimes caused by excitement kept up by thinking of this, that and the other. The brain is in full action and requires the usual supply of blood. When you recite a series you quiet yourself by shutting out the disturbing elements. As soon as the demand

for blood in the brain is lessened the supply is also lessened by the contraction of the arteries, and sleep comes on.

4. "Does the excessive use of tobacco tend to impair the memory?"

Extreme in anything is a vice and virtue is medium between extremes. Anything which injures us bodily tends to injure us mentally, for mind and body are in close relation. But you say, "I can think much better when I have my pipe or cigar in my mouth." That may be; but it is not because the tobacco has any good influence over your mental powers, but because it makes you contented. You are a creature of habit —a baby who must have its toy.

Whatever effect a moderate use of tobacco may have upon the brain, excessive indulgence must be injurious. Dissipation and violation of the laws of nature cannot but have a direct influence upon the brain. Let, then, our motto be, "*Mens sana in corpore sano.*"

5. "Can you not suggest any pleasant way of strengthening the memory apart from the recitation of series and such like?"

Describe what you have seen. Relate what you have heard—a sermon or a speech—anything to keep your mind in trim and to prevent the memory from getting rusty. Those who are in the habit of telling anecdotes have usually a fairly good memory, for the simple reason that they make use of their memories.

Adopt the plan of Thurlow Weed. Here are his own words:—"When a young man, I had to adopt a regular method for strengthening my memory, and I hit on one that was very effective. I will tell you all about it for the benefit of other young men. I got married in

1818, when I was working in Albany as a journeyman printer. In a few months I went into business, establishing a newspaper for myself, and some of my friends thought I would succeed in politics, probably because I impressed my views strongly on those about me. But I saw at once that I had a fatal weakness which I thought would prevent it. My memory was a sieve. I could remember nothing. Dates, names, appointments, faces—everything escaped me. I said to my wife, 'Catherine, I shall never make a successful politician, for I cannot remember, and that is a prime necessity of politicians. A politician who sees a man once should remember him forever.' My wife told me I must train my memory. So when I came home that night I sat down alone, and spent fifteen minutes trying silently to recall with accuracy the principal events of the day. I could remember but little at first; now I remember that I could not then recall what I had for breakfast. After a few days' practice I found I could recall more. Events came back to me more minutely, more accurately and more vividly than at first. After a fortnight or so of this Catherine said, 'Why don't you relate to me the events of the day instead of recalling them to yourself? It would be interesting, and my interest in it would be a stimulus to you.' Having great respect for my wife's opinion, I began a habit of oral confession, as it were, which was continued for almost fifty years. Every night the last thing before retiring, I told her everything I could remember that had happened to me or about me during the day. I generally recalled the very dishes I had for breakfast, dinner and tea; the people I had seen and what they had said; the editorials I had written for my paper, giving

her a brief abstract of them ; I mentioned all the letters I had sent and received, and the very language used, as nearly as possible ; when I had walked or ridden—I told her everything that had come within my observation. I found I could say my lesson better and better every year, and instead of the practice growing irksome, it became a pleasure to go over again the events of the day. I am indebted to this discipline for a memory of somewhat unusual tenacity, and I recommend the practice to all who wish to store up facts, or expect to have much to do with influencing men."

6. "Does the learning and reciting of a series of connected words train the memory better than the learning of anything else?"

In learning a series of connected words we are simply reviving what we already know ; we are using the memory at each step. Again, in reciting such a series the mind gets every encouragement to be present. It is driven, as it were, from step to step in a certain channel. Each link suggests the next until we come to the end of the chain. No encouragement is given to mind-wandering and day-dreaming. In this way we may acquire the habit of attention and a power of concentration.

7. "I find that I cannot commit to memory and retain as I could in years gone by. What is the matter?"

As we advance in years we cannot expect an increase in the receiving and retentive power. In youth the blood is richer and the circulation quicker—the fibers vibrate readily. The brain of the adult is more callous and less favorable to vibration and molecular rearrangement—in other words, to the receiving of a vivid im-

pression. In youth the whole instrument—the brain—is comparatively unused. The brain cells are gaping for contents. As age goes on the great storehouse of ideas becomes fuller and fuller. Ideas and groups of ideas have already established themselves, and you have to be somewhat careful of the manner in which you store your additional knowledge. You must consult the ideas already in the mind—the old established inmates—if you wish to secure admittance for your new acquisition.

Your health may not be as good as when younger. The cares of life are telling upon you—you have so many things to think of—all tending to weaken the grasping power of the mind.

8. "My difficulty is to recall a friend's name when he comes upon me unawares."

The mental detective does not get time to find out the name. You do not assist him because you are confused and excited. Excitement tends to retard revival because it brings on a state of mind different from that in which the brain was when the impression in question was received. In some cases, it is true, it has the contrary effect. The speaker warms as he proceeds in his argument, and the warmer he becomes the quicker he can speak—provided, of course, he maintains his equilibrium and does not become too excited.

9. "What reasons have you to think that memory can be cultivated by exercise in a similar manner that an ordinary muscle can?"

A muscle is composed of fibers which contract and expand. This muscle, if exercised in the right manner and degree, will become stronger. In like manner the brain is a mass of little fibers which are disposed to

vibrate—these vibrations giving rise to sensations and ideas. Now if these fibers are set vibrating in the proper manner and degree, what reason is there to think that such exercise will not add to their vibrating power? The two are physiologically analogous. In psychological memory, of course, we have something more than the material element, but this does not interfere with the analogy just drawn.

10. "What is the best time and mode to study?"

Each one must exercise his own judgment as to this. Some can study better in the morning just after a refreshing sleep; we should certainly not attempt to study when we are tired, for, as already pointed out, the brain is not in a fit state to receive and retain impressions. I was very much amused, at the *beginning* of the *summer* 1887, to find that a certain individual stated in authoritative terms that *summer* was the best time to study. It so happened, however, that it was to his advantage that people should study that summer.

You should not continue the study of the same subject for more than about two hours. Take up another subject of a different nature. Let classics be followed by mathematics. Do not recite a number of series one after the other. Recite one now and another in a few hours later or to-morrow. The overdoing of anything usually brings on dislike. Extreme in itself is a vice.

11. "How often ought I to go over a certain series, and in what time ought I to give it? Would it be a good practice to recite these series while doing some other work?"

Discontinue any series which is too familiar to you, for you can recite it mechanically and be thinking of something else all the time. This is encouraging mind-

wandering. It does not matter what time you take provided you keep the mind present. If you endeavor to recite quickly you are more likely to concentrate your mind upon your work. You give no chance for intruding thoughts to interfere with you.

If your power of continuous thought is not strong it is anything but a good practice to recite a series while doing some other work. We should accustom ourselves to do one thing at a time and to do that thoroughly. Some business men are inveterate mind-wanderers because they are in the habit of flitting from one thing to another, having so many things to attend to at one and the same time. If we do two things at the same time, one or both must be more or less mechanical.

12. "How is it that I remember some things better than others?"

In anything relating to your own business you are naturally *interested*. You will therefore pay special *attention* to it and will remember it. Besides there are already in your mind many ideas and groups of ideas concerning the subject, so that by force of affinity a new fact will readily become associated with the old.

The more we know about any subject the better we can understand and the easier we will remember a new fact relating to that subject.

13. "I can remember some sermons or speeches much better than others. What is the cause?"

This depends upon the nature of the subject as well as upon the manner of speaking. It is impossible to grasp what some people say, because they throw their ideas upon you in a disordered heap. The labor of connecting these ideas and of bringing them into a unity is left to you. You are hardly equal to the task because

the ideas are presented to you in rapid succession. You have no time to find what the speaker ought to supply. The speaker himself may see a connection between the different points because he has been thinking about them. Familiarity with a subject may make us overlook the possibility that others are not so familiar with it.

Others put their thoughts before us in such a manner that we cannot fail to follow. One idea grows out of the other. Each step prepares us for the next. The whole is given us link by link, and when the speaker has finished we have the chain.

14. "I have for even a month been trying to recall a name, and yesterday it came upon me like a flash of lightning; I cannot account for such a phenomenon."

When you tried to recall the name you set to work a mental detective—a train of thought—which obeyed your orders—did its duty slowly and silently but conscientiously. At last the truant was found, and brought to your presence. This is referred to more fully elsewhere.

Besides, the immediate cause of the recall may be an idea or a sound given to you at the time.

15. "I am very much given to mind wandering. Can you suggest a thoroughly good exercise calculated to stop this tendency?"

Recite aloud words which will translate the numbers from 1 to 200. Get a word which will express 1, then another which will express 2, another expressing 3, and so on until you reach 200. Then do the same backward. You are not asked to make a special series and recite it forward and backward, but each time you do this exercise think of *any* word which will translate

each of the figures as you proceed. Do not recite the figures, but simply the words slowly and unhesitatingly. Do not attempt to give the *same* words each time, but *any* word equivalent of each of the numbers, going forward and backward once a day for a month.

16. "How am I to distinguish date words from the other words (intermediates) in a series?"

If you recite a series for the sake of the training, you will give as much prominence to the intermediates as to the date words. Consequently these intermediates may possibly thrust themselves upon you when you are in search of the date words. But such prominence is not given to intermediates when used as means to the end of joining extremes. As means for memorizing their object is to assist. They must be kept in the background.

LESSON XX.

HISTORY.

In this lesson will be given three important series. Let the pupil learn one of them—reciting it forward and backward once a day for a fortnight. It will be an advantage to consult a history.

1. Roman Emperors from Augustus to Constantine —with dates of accession. Rome was a Kingdom from 753 B. C.—510 B. C.; a Republic from 510 B. C.—27 B. C.; an Empire from 27 B. C.—476 A. D.

AUGUSTUS
"exalted"
abased
waning (27 B. C.)
decreasing
river
Tiber
TIBERIUS
Livia Drusilla
drew (14)
attracted
Venus
CALIGULA *
assassinated
cut down
mowing (37)
hay-making
fair weather
cloudy
CLAUDIUS
claws
track
road (41)
short
near
NERO †
"public singer"
hail her (54)
girl
"gal"
GALBA
"murdered"
Fates
fove (68)

* Caligula in his insanity declared himself to be a god, and would go through the streets dressed as Bacchus, Venus or Apollo.

† Nero frequently exhibited himself as a public singer.

God
oath
OTHO
thorn
pain
enduring
Jôb (69)
"Thy sons and thy daughters were eating
victuals
VITELLIUS *
"glutton"
excess
passion
VESPASIANUS *
"distinguished soldier"
trained
taught us
TITUS
Jerusalem
city
capital
cap (79)
top
dome
DOMITIAN
"timid and inhuman"
evade (81)
weakness
nervousness
NERVA
Minerva
war
commander
Pasha (96)
bashful
shameful
tragedy
TRAJANUS
"Be happier than Augustus, better than Trajan"
behave (98)
courageous
HADRIAN
Adriatic
tide
tidying (117)
dying
pious
ANTONINUS PIUS
general peace
time of woe (138)
mars all
MARCUS AURELIUS
"The Philosopher"
lover of truth
attached (161)
hooked
"dragged by iron
COMMODUS [hooks"
commodious
palace

* 69.

rich
Dives (180)
avaricious
pertinacious
PERTINAX
"deeply lamented"
deepen (192)
disgrace
"The throne of the world sold by auction"
DIDIUS JULIANUS
"executed as a criminal"
severe
SEPTIMIUS SEVERUS
"strove to remove rivalry of his two sons"
do obey him (193)
obedient
character
CARACALLA
"Common enemy of mankind"
noted (211)
work
macramé
MACRINUS
may cry
what for?
nothing (217)
great
"sun"
ELAGABALUS *
gabble
talk
notify (218)
that you may defend yourself
"defender of men"
ALEXANDER SEVERUS †
murdered by a *band* of soldiers
in union (222)
"greatest" strength
"maximum"
MAXIMIN
mineral
hard
enamel (235)
melody
harmony
chord
GORDIAN ‡
guardian angel
goddess
nymph (238)

---

* The sun was worshiped at Emesa under the name of Elagabalus.

† Alexander = defender of men.

‡ Papienus and Balbinus were associated with Gordian as emperors.

water
fill up
PHILIP
lips
close
nearer (244)
come
see us
DECIUS
decent
dress
unrobe (249)
robe
France
Gaul
GALLUS and HOSTILIANUS
hostility
peace
stooped
knelt (251)
low
valley
VALERIAN and GALLIENUS
lean
lamb
no lamb (253)
fierce
rage
"pestilence"
MARCUS AURELIUS CLAUDIUS
Egypt
Mediterranean
anchovy (268)
unshaved
"unpolished"
AURELIAN
New Orleans
hot
awnings (270)
yawning
taciturn
TACITUS
"70 years old"
time
flies
an eagle (275)
nest
house
floor
FLORIAN
flower of the army
"best soldier of the age"
PROBUS
probe
try
new coach (276)
do not care for it
CARUS
careless
rough
uneven (282)
number
numerical

CARINUS and NUMERIAN	CONSTANTIUS and GALERIUS
numerous	two
crowd	dual
no fame (283)	duel
famous	*missile* (305)
DIOCLETIAN and MAXIMIAN	steady aim
abdicated	"resolute"
unusual	CONSTANTINE THE GREAT
seldom	Constantinople
never (284)	"New Rome"
"to one thing constant, never" *	news
	message (306)

2. Kings and Queens of England with dates of accession :—

EGBERT	ETHELBALD
"the sword's bright-bright [ness"	bald
	overwork
evening (827)	*foolish* (856)
night	too free
wolf	pert
ETHELWULF	ETHELBERT †
(wolf)	"serpent"
ravenous	eels
famish (836)	*fishes* (860)
desperate	salmon
bold	red

* "The Friar of Orders Gray"—Thomas Percy.

† In this reign, Ladbrog—leader of the Northmen—is said to have been cast into a pit filled with serpents by which he was stung to death.

ETHELRED
bloom
youth
of a shy age (866)
sage
wise
ALFRED THE GREAT
"burnt cakes"
historical
fact (871)
truth
reward
EDWARD THE ELDER
"The elder"
church
pillar
post (901)
high
"noble" *
ATHELSTAN
"King of the English"
banner (924)
display
magnificent
EDMUND THE MAGNIFICENT
Leof †
festival
wine
port (941)
sea
dread
EDRED
hatred
harm
perish (946)
pear
edible
EDWIN
win
entice
Belial (955)
evil spirit
guard against
EDGAR THE PACIFIC
quiet
talkative
blab (959)
tell-tale
persecute
martyr
EDWARD THE MARTYR
death
prepare
buckle (975)
ready
ETHELRED THE UNREADY
bribed
"bribed the Danes"
pirates

* Ath = Eth = noble—Athelstan = noble stone.

† This king was slain by Leof, an outlaw, who pierced him by a dagger at a festival.

a big wave (978)
swim
SWEYN
foreigner
stranger
test him (1013)
test him again
recall
ETHELRED THE UNREADY *
do steer (1014)
ship
ironside
EDMUND IRONSIDE
strong
great
CANUTE THE GREAT
"sea-beach"
does he teach? (1016)
school
"Harrow"
HAROLD HAREFOOT
swift
this mail (1035)
has hardly come
HARDICANUTE
"vindictive"
desires (1040)
express
confess
EDWARD THE CONFESSOR †
saint
god
discern (1042)
see
"Pevensey"
HAROLD II.
"An arrow pierced his eye"
keen
this judge (1066)
peace
war
conqueror
WILLIAM THE CONQUEROR
overcomes
intoxicates
hachisch (1066) ‡
"excessive drinking"
WILLIAM RUFUS
"slain by an arrow"
uncertain

* On the death of Sweyn, King of Denmark, Ethelred was recalled by the Witan on the condition that he would rule them better—Sweyn having ruled but few weeks.

† The title of confessor has almost the same meaning as that of saint, and was conferred on Edward III. by Pope Alexander III. about a century after his death.

‡ Hachisch = preparation of Indian hemp used in the Levant. Henceforth the "1,000" will be left out.

vague (1087)
exact
scholar
"beauclerk"
HENRY I.
Robert
"eyes put out"
day's eye
daisies (1100)
flower
blue
"Count de Blois"
STEPHEN OF BLOIS
David, king of Scotland
porridge
oatmeal (1135)
meal
chicken
hen *
HENRY II.
"Plantagenet"
powerful
"almighty"
dollar (1154)
rich
RICHARD I.
"Cœur de Lion"
lion-hearted
do have hope (1189)
adversity
"Lackland"
JOHN
"quarrel *with the Pope* † Innocent III."
HENRY III.
First House of Commons
late sitting
night-watch (1216)
"all night long"
"Longshanks"
EDWARD I.
"Conquered Wales"
gain
no gain (1272)
assassination
Berkeley Castle
EDWARD II.
missing (1307)
dark
black
"Black Prince"
EDWARD III.
Cressy
crazy
maniac (1327)
raving
insurgents
"Wat Tyler"
RICHARD II.
made prisoner
making (1377)
noise

* Hen—H = Henry; n = 2.
† With the Pope = 1199 = date of John's accession.

sing
"Lollards"
HENRY IV.
"Bolingbroke"
bowl
imbibe (1399)
gin
"Agincourt"
HENRY V.
Monmouth
mammoth
deemed great
redeem (1413)
"loss of France"
"Joan d'Arc"
HENRY VI.
"Wars of the Roses"
two parties
reunion (1422)
together
work
"York"
EDWARD IV.
licentious
wretched (1461)
imprisonment
Tower
EDWARD V.
"one of the two prin-
RICHARD III. [ces"
"crookbacked"
horseback
arrive home (1483)
early
earl of Richmond
HENRY VII.
Tudor
tutor
"teach the young idea
how to shoot"
rifle (1485)
army
Lord Wolseley
"Wolsey"
HENRY VIII.
"obesity"
Lo, see a heap! (1509)
sleep
death
at sixteen
EDWARD THE SIXTH
"battle of Pinkie"
pink
alluring (1547)
lady
MARY
"sourness"
cheerfulness
will illume (1553)
lighthouse
ships
"The Spanish Arma-
ELIZABETH [da"
"*good*" Queen Bess
holy.
holy life (1558)

Saint James
JAMES I.
"House of Stuart"
steward
choose him (1603)
chairman
chair
CHARLES I.
channel (1625)
well
Cromwell
COMMONWEALTH
uncommonly
sharp (1649)
rapid
spread
"The plague and fire"
CHARLES II.
Cabal ministry
judges (1660)
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changed place
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WILLIAM III. AND MARY
"Establishment of the Society for Promoting Christian Knowledge"

the joy of hope (1689)
unseen
hide
"Anne Hyde"
ANNE
Union of Scotland
relationship
cousin (1702)
GEORGE I.
"apoplexy"
disease
goitre (1714)
swelling
rupture
"rupture of the heart"
GEORGE II.
"Military Academy founded at Woolwich
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GEORGE III.
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coaches (1760)
"London Mechanics' Institution"
GEORGE IV.
"forgery no longer punishable with [death"
feigns (1820)
rains

pours forth
WILLIAM IV.
"the sailor king"
ocean
foams (1830)
foaming (1837)
cream horses
VICTORIA

3. American Presidents *:—

WASHINGTON
capital
gay
fop (1789)
prim
primeval
Adam
ADAMS
add
account
book (1797)
history
Judge Jeffreys
JEFFERSON
son
relation
tie (1801)
madman
MADISON
Edison
electric telegraph
messenger
boy (1809)
school
Monday
MONROE
row
boat
tug (1817)
sea
JOHN QUINCY ADAMS
"Old man eloquent"
appropriate speech
"to hit the nail on the head"
nail (1825)
boot
boot-jack
JACKSON
"Old Hickory"
tough
dull
an ape (1829)
menagerie
van
VAN BUREN
bureau
make (1837)

* All the American presidents were elected in this century except the first two. The century therefore can be safely omitted.

haste
hurry
HARRISON
risen
taxes
"Wat Tyler"
JOHN TYLER
tail
horse
ride (1841)
park
St. James
JAMES K. POLK
polka
dance
reel (1845)
tailor
TAYLOR
robe (1849)
fit
FILLMORE
more
less (1850)
pain
PIERCE
through
limb (1853)
wounded
cannon-ball
BUCHANAN
Scotch
"Auld lang syne"
lang (1857)
long
chain
link
LINCOLN
shot (1861)
battle
Joan of Arc
JOHNSON
will you join us?
I shall (1865)
GRANT
give
job (1869)
hay-mowing
HAYES
he is
quick (1877)
"the quick and the
"killed" [dead"
GARFIELD
war field
knights
King Arthur
ARTHUR
author
unknown
fade away (1881)
leave the land
CLEVELAND
cleave to the rock
fall (1885)

EXAMINATION PAPER.

1. Give dates of foundation and fall of Roman Empire.

2. Give the dates of accession of Tiberius and Constantine.

3. Which of the emperors was known as "the philosopher"?

4. Give the dates of accession of Egbert, William I., Henry VIII., and Queen Victoria.

5. Recite one of the foregoing series, forward and backward. Time yourself.

LESSON XXI.

(*Optional.*)

MORSE'S AMERICAN TELEGRAPHIC ALPHABET.

KEY: S = short or dot, L = long or dash, N = nothing or space. All vowels and w, h, y, have no value.

An expert operator will look upon this mode of learning this alphabet as a very long one; but this is because he already knows the alphabet.

The method is simply means to an end—the end being to learn the alphabet. As soon as the end is gained the means is dispensed with.

A	*ale*	SaLe	. —
B	*bee—buzz—girls*	LaSSeS	— . . .
C		SeaSoNS	. . .
D	*deal—great—more*	LeSS	— . .
E	*case*	caSe	.
F	*effeminate — woman — scalskin*	SeaLS	. — .
G	*genial—partners*	aLLieS	— — .
H	*hedge—protect—value*	aSSeSS	. . . .
I	"*I*"—*egotist—dude*	aSS	. .
J	*jay—gay—dresses*	whoLe SaLeS	— . — .
K	*cayenne—grocer*	whoLe SaLe	— . —
L	*double L*	LL	——
M	*empty*	aLL	— —
N	*entry—sale*	LeaSe	— .
O	owe—*obedience*	SoNS	. .
P	*pay—taxes*	aSSeSSeS	. . . . .

Q	*cue—take up*	aSSaiLS	. . — .
R	*arrears—hear—sense*	SeNSeS	. . .
S		eSSayS	. . .
T	*tea*	Lay	—
U	*Q—cue—take up*	aSSaiL	. . —
V	*venous—leaf*	SeSSiLe	. . . —
W	*double—"two prices"*	SeLL	. — —
X	*exit—slip out slyly*	SLy aSS	. — . .
Y	*wise—foolish—insane*	hiS SeNSeS	. . . .
Z		haS he hiS SeNSe?	. . . .
&	*"and"—hand—head*	SeNSe, he haS hiS	. . . .

NUMERALS

Key: S = dot, L = dash. No other letters are considered.

1	*won—battle*	SaLLieS	. — — .
2	*two—to-night—dark*	SeeS LeSS	. . — . .
3	*three—sea*	Sea haS SeaLS	. . . — .
4	*four—fortune—fame—William Tell*	SwiSS SoiL	. . . . —
5	*five—fife—band of music*	LuLL	— — —
6	*six—sick—taxes his brain*	aSSeSSeS hiS	. . . . .
7	*Seventh day—hallowed*	LawLeSS	— — . .
8	*eight—late—robbery*	LoSSeS he haS	— . . . .
9	*nine—sign—saloon*	LeSS aLe	— . . —
0	*two noughts—100 = LL*	LL	——

SHORTHAND—MUNSON'S TEXT-BOOK.

1. Consonants—straight lines.

The key-word begins with the consonant in question; ck at the end of key-word = light line; any other termination = heavy line. The key-word is joined by intermediates to a word, or words, indicating the direction in which the phonographic character is written.

Consonant	*Key-word*		*Indicating-word*	*Character*
P	Pick	*Pick-pocket, shame*	Down-right	╲
B	Bee	*See, round-fight*	Down-right	▬
T	Tick	*Feathers*	Down	|
D	Dee	*River, land*	Down	▮
Ch	Chick	*Sick of palsy, let down*	Down left	╱
J	Jay	*Bird, let itself down*	Down left	▰
K	Kick	*Stick, straight*	Right	—
G	Gay	*Happy, all right*	Right	▬
Rec	Wreck	*Wind, blown right up*	Upright	╱

2. Consonants—curved lines.

The first consonant in the key-word is the consonant we deal with. Termination "ing"= light characters; any other termination = heavy characters. The key-word is joined to a word, or words, indicating the position of the character as part of a circle.

Consonant	*Key-word*		*Indicating-word*	*Character*
M	(H)emming	*Hem in, lock up*	Up	⌒
H	Hay	*Pitch up*	Up	⌒
R	Erring	*Crooked*	Upright	)
W	Way	*Walk*	Upright	)

Consonant	Key-word		Indicating-word	Character
S	Sowing	*Right hand*	Right	)
Z	Easy	*Sea, travel, right ahead*	Right	)
Sh	Showing	*Show-off, ride around*	Right down	)
Zhee	Z	*Last, last penny, shame*	Downright	)
N	Inning	*Base-ball, basement*	Down	—
Ng	(S)ing	*Bird, feather*	Down	⌣
F	Feeing	*Travel, left town*	Left down	╲
V	Vie	*Die, coffin, let down*	Left down	╲
Th	Thawing	*Freezing, cold, left out*	Left	(
Th	They		Left	(
L	Lowering	*Lift up*	Left up	(
Y	Yew	*Tree, high, lift up*	Left up	(

3. Vowels.

The vowels are represented by light and heavy dots and dashes, and are written in three positions: first, second and third. To indicate the position the key-word containing the vowel sound begins with "F," "S," or "T" (or "D"): F = first, S = second, T or D = third. The key-word is joined to another word beginning with "H" or "L,"—the last consonant being "T" or "Sh;" H = heavy, L = light, T = dot, Sh = dash.

Vowel	Key-word		Indicating-word	Character
A	Father	*Head*	Hat	.
A	Sailor	*Lighthouse*	Hut	.
E	Dealer	*Strike a bargain*	Hit	.

Saint James
JAMES I.
"House of Stuart"
steward
choose him (1603)
chairman
chair
CHARLES I.
channel (1625)
well
Cromwell
COMMONWEALTH
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prim
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history
Judge Jeffreys
JEFFERSON
son
relation
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madman
MADISON
Edison
electric telegraph
messenger
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school
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JOHN QUINCY ADAMS
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an ape (1829)
menagerie
van
VAN BUREN
bureau
make (1837)

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powers; thus producing a patchwork quite out of harmony with the unity and simplicity of mind and the wise economy of the Creator.

The Sensational School.

In the first class may be reckoned the whole of the Sensational School, whose general doctrine is that all our knowledge may be traced to our *sensations*—to impressions made on the organ of sense, and to changes caused by these impressions. The capacity for sensation is thus the single element—the original, if not the only power of knowledge. Given an organism—such as our body—and certain outward stimuli, you have sensation, and sensation transformed into knowledge. The only other point admitted is a susceptibility of association or combination among our primary sensations. One sensation has certain affinity with others, just as one particle of a body has affinity for another. Sensations coalesce and form a connection found in experience. Our various mental phenomena, such as memory and will, are thus only different cases of *association of ideas*—all originally got through the senses. Such is the view of Condillac, Hartley and Priestley, and perhaps that of Huxley. Hume tells us that sensations generate thought—that thought is merely a copy of sensation. But (1) sensations are not conceivable except as examples of thought. We have no sensation without thinking it as of some sort, quality or degree. We must think it as involving unity, plurality and distinction—unity of the mind, plurality of the sensations themselves, and distinction between mind and sensations. Thoughts are the very conditions, not the result, of our sensations. (2) If thought is but a copy of an impression, it must be singular just as the impression itself; how then can we account for the

generality in thought? If thought be *general*, it cannot be a mere copy of a *singular* impression. So we must abandon Hume's theory, or we must give up what is distinctive in thought. To say that isolated impressions are connected by mere custom does not satisfy us; for each sensation is at a *different time* and time disunites. If then the sensations of different time coalesce there must be some identity—something which remains the same throughout—by which they do coalesce—namely, *consciousness*. They can come together only because there is unity in the consciousness which experiences them at the different times. We have thus come upon one of the general powers—Consciousness.

But let us return to the other extreme view as to the classification—that of looking upon the mind as an aggregate of a great number of primary elements. If we do fall into error in this respect, it must not be understood that the unity of the mind is broken up into independent faculties. They are one in virtue of the essential unity of the mind—of the *self or Ego*. Each act or state of mind implies and manifests this unity. By this center we get our first knowledge of unity and diversity.

Principle of Classification

But what is the principle upon which we classify these powers? We discriminate them by the nature of the object of which they take cognizance. Object—or diversity of object, for we know one thing as compared with another—is at the root of all knowledge. A general power is a faculty which does not confine itself to any special or definite object. It is exercised in *general* concerning all the acts of mind and all the objects of which we have any knowledge. Special powers on the other hand, such as perception and

imagination, restrict themselves to certain definite objects. In some cases, as in perception, the object with which the faculty deals is given; in others, as in imagination, it is the creation or product of the faculty itself.

We now proceed to give a short sketch of these powers, avoiding technical language as far as the subject will permit, and dealing with each separately, yet in its relation to memory.

Consciousness. The most general of all the faculties for the acquisition of knowledge is *consciousness*, for it takes in all the acts of mind and all the objects with which the mind can be engaged—makes a synthesis of them and refers them to the central self or ego. Some have proposed to make consciousness a special power, having to do with the acts of the mind to the exclusion of the objects connected with these acts. Sir William Hamilton, however, maintains that the object and the act are inseparable. The act exists only as it has an object. Take away the object and you have no act—no consciousness. If consciousness be restricted to acts of the mind, we have two acts of knowledge in every act of our cognitive powers—knowledge of the object due to one faculty, say perception, and knowledge of the act due to another—consciousness. This is contrary to our experience, for it makes part of our knowledge—the object known—to be outside of consciousness. The whole difficulty has arisen not from divergence of opinion, but from taking opposite points of view and from want of distinction between the two kinds of consciousness. In voluntary or reflective consciousness we attend to the act rather than to the object. This has been confounded with involuntary con-

sciousness. Hence the supposition that consciousness in general does not extend to the object known. This opinion was held by Aristotle, and it seems to be countenanced by Reid and Stewart. But there is no exercise of consciousness *per se*. We are conscious only as exercising this or that definite power, and there is no exercise of this or that special power apart from consciousness. It is thus a generic term which embraces all mental phenomena from the highest to the lowest. There may be latent modifications of mind of which we are unconscious. Every *present* or actual state of mind is a *conscious* state, but it is quite possible that unconscious states of mind exist. This has been plausibly maintained by many philosophers. Leibnitz holds that our consciousness arises out of our unconsciousness. It is by this theory that he explains the existence and action of memory. In memory, however, the things recalled were once *conscious* states, and are different from states suddenly projected from unconsciousness.

Leibnitz's Theory of Memory

Definition

Consciousness is the *immediate knowledge* by the subject—by the self or ego—of its own acts and states. It affirms that these acts and states are its own, and is, therefore, a judgment. This view is in harmony with the etymology of the word—"Conscientia" is a "knowing along with"; *συνείδησις* = "joint knowledge." Conscience, the earlier form of the word, reminds us of the double knowledge implied in consciousness. "Merit and good works is the end of man's motion, and conscience of the same is the accomplishment of man's rest."—*Bacon*. Reid and Stewart describe it as the immediate knowledge we have of the present operations of our own mind. Hamilton ex-

plains it as the recognition by the mind or ego of its own acts and states, and looks upon it as identical with *immediate* knowledge.

The word "*present*" in Reid's and Stewart's definition is unnecessary, for all that is *immediately* known must be present in time and space. It is not immediate *and* present, but immediate, *therefore* present. The past is known *mediately*—through the mediation of a representation in memory—through the *ideal* object in the memory representing the *real* object in the past—and ideal actually existing now and here.

Mediacy of Memory.

Though Reid called consciousness the immediate knowledge of the *present* mental operations, he called memory the immediate knowledge of the *past*, and here he is opposed by Hamilton. But the reason why Reid applied the word "*immediate*" to memory was because he rejected the scholastic doctrine of species. According to this theory there are "*species*" through which the senses and the memory know the object. There is an object, a species in the mind, an act of memory—three distinct things. Reid meant to say that our knowledge of the past was immediate, without any medium of this nature. He did not observe that the act of memory is representative of the past, and is, therefore, mediate.

Some writers say that we cannot be conscious of what is *now* present, but only of the immediately preceding past—that, if we contemplate ourselves as thinking, we cannot be thinking and contemplating ourselves as thinking at the same moment. This is assuming that we cannot know two things at one and the same moment. This doctrine, while putting forth memory as the medium of all knowledge, really abolishes mem-

ory. If there be no present object in knowledge, if the self as known be always a *past* self, if consciousness necessarily makes everything past, how are we to distinguish past from present? How are we to distinguish memory from perception? A present past is as incompatible with memory as an abiding present.

The distinction between immediate and mediate knowledge has an important bearing on all fundamental questions in Metaphysics, for it touches on the question, "What is our guarantee of the reality of the outside world?" If we hold that we have an immediate knowledge of the material world, we have a guarantee of its reality. In the case of mediate knowledge we have to prove that the representative picture is a true picture of our experience. Along with the image is a belief in the past reality as here and now imaged in memory. This reference of the representation to foregone existence is the characteristic feature of memory, which marks it off from the floating images of the fancy which do not bring with them the conviction that the images are the representations of actual reality.

Characteristic of Memory.

Hamilton, who has done so much to give precision to the distinction between mediate and immediate knowledge, has said that consciousness comprehends every cognitive act, and that we do not know that of which we are not conscious. John S. Mill brings forward objections to this:—

1. "If consciousness be immediate and comprehend all knowledge, the past and the absent cannot be known." There is no force in this attack, for we know the past and distant by the immediate knowledge of the present representation in the mind.

2. Mill goes on to argue that, if a remembered fact is a part of our consciousness, it is wrong to say that we are conscious of the past. The phrase "remembered fact" is ambiguous. It may mean the remembrance of a fact. If so, the remembrance being in our consciousness does not imply that we are conscious of the past fact, but merely of the picture or image of it. "Remembered fact" may mean the past fact which we remember. This cannot be a part of our consciousness. If it were, the consciousness of it would certainly not be consciousness of the past. Thus the objector destroys himself with his own weapon, and proves not that we are conscious of the past but of the present only.

3. "Again, if the 'remembered fact' is not a part of our consciousness we are wrong in saying that we can know the past or that we are not conscious of what we do not know." Neither alternative is correct. The "remembered fact" need not be—indeed cannot be—an object of our consciousness in order that we may know the representation of it which is all we have. The "remembered fact" itself not being a part of our consciousness is no proof that we have any actual knowledge of what we are not conscious.

In the above sketch the subject is looked at from a psychological point of view. Consciousness is referred to the ego or self. It would not be amiss to direct the reader's attention to the physiological side of the question. What is the "seat" of consciousness? Some physiologists answer, "The brain as a whole." With this, however, Dr. Wm. B. Carpenter and others do not agree—maintaining that we are made aware or conscious of a "brain-change"

Seat of Consciousness.

by the action of the *Sensorium* or sensory ganglia —"that assemblage of ganglionic masses lying along the base of the skull." In support of their view they bring forward the following arguments:

1. "The brain is an aggregate of ganglionic centers having very distinct functions." Impressions made on the organ of sight—and *ex uno disce omnia*—are conveyed into, and are recorded in, what is called the occipito-angular regions, situated at the back of the head. If you destroy that part the sense of sight is interfered with. Although it is true that the brain may thus be regarded, it is equally true, as Dr. Mercier points out, that in the highest brain centers we have to do not with any specialized and circumscribed areas of "localization," but with a region where the various parts of the body are *all* represented in *some* degree. These centers are the means by which the whole organism is brought to a unity. Each center may have its peculiar work, but it cannot be wholly dissociated from its fellows. The fact, then, that the brain is made up of centers is no indication that any particular region is engaged in the special work of reporting brain thrills.

2. "The cerebrum, which in man is the largest of these brain centers, is the instrument of our psychical or inner life. It is a superaddition to the sensorial centers, scarcely a trace of it being found in the lowest vertebrates, which, however, are capable of sensation and motion. Even the invertebrate animals manifest *conscious* action." From this it is argued that the cerebrum has no direct communication with the external world; that all brain modification must report itself in the sensorium before we become aware of its existence. But, as Dr. Ferrier states, this argument is

weakened by the fact that the actions of the invertebrates are entirely different in kind from those of vertebrates deprived of their cerebral hemispheres. The former "seek their food, are capable of education, and learn to adapt their actions so as to seek what is pleasant and avoid that which is painful—faculties which are entirely abolished by removal of the cerebral hemispheres" in the latter. The difference is not only in *degree* but in *kind*. Dr. Ferrier, therefore, infers that in the ganglia of the invertebrates there are nerve cells which perform, to some extent at least, the functions of the cerebrum in vertebrates. Experiments have proved that consciousness of impressions remains, and thought and speech are left intact, when the sensorium has been practically removed. This has led Flourens and others to think that sensation proper is abolished by the removal of the cerebrum, implying that this is the "seat" of consciousness.

3. It is further urged that the substance of the cerebrum is insensible. Here, again, Dr. Ferrier intervenes. "We have no reason to suppose that one part of the brain is capable of being excited and another part is not. The question is, rather, how the stimulation manifests itself." But even if this substance is deaf to any artificial force in the case of experiments, it does not follow that it is not conscious of impressions brought to it by normal means, and of these impressions transformed into ideas.

Memory a proof of Consciousness.

Whether the cerebrum is necessary for the consciousness of *present* impressions is still an open question. It is, however, highly probable that this part of the brain is the "seat" of *past* impressions—the seat of psychical memory. Of course we

must not forget the possibility that every part of the body may be capable of organic memory. My fingers remember how to take hold of the pen. Awkwardness is lack of memory. Memory is a good proof of consciousness, for it is difficult to see how consciousness can have any psychical import without some persistence in memory. Let the reader thoughtfully consider these questions, and let him at the same time reflect that this is not a region for dogmatism; that we are here dealing with one of the mysteries which baffle all attempts to unravel them.

Having thus considered consciousness in its general aspect, with some reference to memory, let us see the relation between the two—Consciousness and Memory.

We have seen that there are two kinds of consciousness—voluntary, or reflective, and involuntary. Here we may ask, "Is 'Will' a necessary condition of memory, or does any act of consciousness imply memory of it the moment immediately succeeding?" This question bears on the subject of mental absorption. When the mind is unoccupied we are alive to the slightest impression; when fully absorbed, on the other hand, we do not notice and remember what would otherwise have a great effect upon us. If two persons address us at the same time, we are able to follow the words of the one, but we cannot take in the remarks of the other. If we are in earnest thought, the clock may strike without our remembering the fact. The next moment we cannot say whether it did or not. In explanation of this fact Reid maintained that the unremembered impression was never actually in consciousness. The ordinary organic conditions were fulfilled, but the consequent sensation did not rise to conscious-

ness, for consciousness is a condition of memory. This, however, is an hypothesis, and may suit the facts of some cases, but not all. In many instances there is a certain degree of memory, though not enough to enable us to specify the exact occurrence. We remember that the second speaker did address us. Some impression was made on the mind. Dugald Stewart went further than Reid, and held that mere involuntary consciousness does not imply any degree of memory. Some amount of "*attention*"—some exercise of the "will," is essential. Attention is, doubtless, necessary to a full knowledge of an object, but memory of that of which we are conscious is necessarily implied in mere consciousness. Everything of which we are conscious at all will, to some extent, be retained in memory. Our ordinary consciousness is not fully realized unless we both remember the past and know the present. It is an assertion of a relation between what is now before us and what is past. It thus involves memory, for it asserts the reality of objects which we actually perceive, and discriminates the present from the past. It is a relation and, therefore, must involve judgment and memory. We may forget what we have been conscious of, but we cannot forget what we were conscious of the moment immediately preceding the present state of consciousness. We probably cannot go further than saying that the immediately preceding state of consciousness is carried into the next by memory.

Consciousness as a Condition of Memory.

Is "Will" implied in Memory?

Leibnitz originated the theory of mental latency, and he was followed by Hamilton and Mansel. This doctrine maintains that there may be

Mental Latency.

impressions on the mind *below* consciousness. Any perception we have of an individual object—a forest, a field or wave's roar—means the gathering up of a number of impressions—of trees, blades of grass, separate sounds—made on the organ of sense and on the mind, but not on consciousness. At last, the accumulation of these impressions becomes such that we have a conscious impression of the *whole*. Hence the object unremembered does not come within consciousness, though making an impression on the mind. Mysterious processes must, doubtless, take place before our consciousness reaches its perfection, but whether these are organic or mental is another question. What does physiology say on the matter? There are, no doubt, changes in the substance of the brain which we do not recognize. To such action the name "unconscious cerebration" has been given. Miss Cobbe says:—"It is an every-day occurrence to most of us to forget a particular word, or a line of poetry, and to remember it some hours later, when we have ceased consciously to seek for it. We try, perhaps anxiously, at first to recover it, well aware that it lies somewhere hidden in our memory, but unable to seize it. As the saying is, 'we ransack our brains for it,' but failing to find it we at last turn our attention to other matters. By-and-bye, when, so far as consciousness goes, our whole minds are absorbed in a different topic, we exclaim, 'Eureka! the word or verse is so-and-so.' So familiar is this phenomenon that we are accustomed in similar straits to say, 'Never mind; I shall think of the missing word by-and-bye, when I am attending to something else'; and we deliberately turn away, not intending finally to abandon the pursuit, but precisely as if

we were possessed of an obedient secretary or librarian, whom we could order to hunt up a missing document, or turn out a word in a dictionary, while we amused ourselves with something else.

"The more this common phenomenon is studied the more I think the observer of his own mental processes will concede, that, so far as his own conscious self is concerned, the research is made absolutely *without him.* He has neither pain, nor pleasure, nor sense of labor in the task, any more than if it were performed by somebody else; and his conscious self is all the time suffering, enjoying or laboring on totally different grounds."

We may fairly admit that there are brain modifications of which we are not aware, but can we call them *mental?* It is doubtful whether it is necessary to suppose that each of the unconscious or imperceptible parts of the whole impression must have unperceived effect on the mind. It may be that *conscious* impression is the first *mental* impression—all the previous impressions being simply organic. Indeed, it seems very difficult to deal with a *mental* impression that is *unconscious.* It is equally difficult to think of an impression preceding consciousness as mental. This theory, however, being held by such men as Leibnitz and Hamilton, is worthy of our consideration; but, as before stated, this is not the region for dogmatism which, in our present state of knowledge, is unphilosophical. There is *prima facie* evidence of impressions on the senses and on the mind which, if not positively unconscious, are at least not remembered immediately thereafter with any vividness. It is not easy to apply the theory to the case of the forest, where a number of

unconscious impressions make up a whole conscious sensation; and to the case of the clock striking—we being supposed to be unconscious of the fact. Indeed, in the latter the theory seems to fail, for there is not an absolute blank in memory, as there must be had there been total unconsciousness. To say that there was no conscious impression, yet a dim memory, is to assert the existence of memory without consciousness.

In explanation the following remarks may be made:—

Limitation of Consciousness.

(1) Consciousness is limited; the fewer the objects the more of it each object receives, and *vice versâ*. (2) In any given case we may have consciousness of an object in its parts or of it as a whole. Some have a wonderful power of discriminating the parts, though unable to bring these parts into a unity. Others can form a general idea of the whole without dwelling upon the individual parts. (3) Consciousness admits of degree, and memory depends upon this degree. The more the consciousness—in other words, the more vivid the impression—the more retentive the memory will be and the easier the revival. We have the minimum of consciousness when the mind is preoccupied, and therefore the minimum of memory. In this case, we remember but indistinctly. This explanation avoids the supposition that there is consciousness without subsequent memory and memory without preceding consciousness.

The reader cannot dwell too much upon this important subject of consciousness, for we have no act of mind independent of it. We can exercise no special power without being at once conscious of both act and object. It is the very condition which renders possible the exercise of all the other faculties.

We pass on to the second of the general powers—namely, Attention, which may be defined as intensified consciousness.

Examination Paper.

1. Define the terms "General power" and "Consciousness."
2. Criticise the definition of memory as given by Reid and Stewart.
3. What do you mean by mediate and immediate knowledge?
4. Is attention necessary to memory or is mere involuntary consciousness enough?
5. What do you know about the theory of "Mental Latency"?
6. What relation does memory bear to consciousness?
7. Can we be conscious of the past? If not, how do we know the past?
8. Write out a table showing the position of memory as a power of knowledge.

LESSON XXIII.

ATTENTION.

"Genius is nothing but continued study and attention."
Helvetius.

The second of the general powers of knowledge is *attention*. Some have regarded this faculty as special, neither implying, nor implied in, the exercise of any other power. This is a mistake, for although we can exercise other faculties without involving attention, we cannot exercise attention itself without the help of other faculties. It is thus semi-special, and occupies a middle position between consciousness and the special powers.

Relation between Consciousness and Attention.

Attention has been looked upon as quite different from consciousness, but this view may be, with advantage, rejected; for it is merely a high degree—a concentration of consciousness. Consciousness has been described as distributed attention and attention as concentrated consciousness. Attention is the means by which we either bring within the circle of our conscious life perceptions and ideas which would otherwise lie in obscurity, or render clearer and more distinct those already under notice. It seems to be a general law of mind that the fewer the objects within the sphere of consciousness the more energy is given to each, and the more the objects, the less consciousness each gets. In other words, the amount of intellectual energy at our disposal is limited—"pluribus intentus, minor est ad singula sensus."

Number of objects we can attend to in the unity of time.

How many objects, then, can the mind attend to at one and the same time? Stewart says: "Not more than one." Hamilton, on the other hand, maintains that the mind is able, and is necessarily required, to attend to a plurality of objects at one and the same moment. To settle this question we must first of all decide what we mean by an "object." What is the magnitude and character of an "object"? An extended surface may be regarded as one or several objects. If an object be taken to mean the minimum visible, then Stewart's view is impossible; for if we lost one visible point before we attend to another, we should not be able to know contiguity of visible points, that is to say, we should not be able to know *surface*. But it may be said that one point is retained in memory while we gaze at the other. Even in this case we must have the two under our attention at the same moment—the object of perception and that of memory. The law of the mental act is knowledge of several objects in the unity of time. To understand extension the mind must attend to points in co-existence. We know many objects which form one complete object.

But what are the different kinds of attention? Consciousness may be intensified into attention by two things—by something in the object itself or by the interest which the mind naturally takes in particular objects. The interest has its source either in the object or in the mind itself. It is either objective or subjective. These two sources give rise to two kinds of attention.

Necessary Attention

Attention arising from an objective source—from the object—is called necessary or involuntary. We are bound to take heed of a brilliant

flash, a loud noise, or a pungent taste. We have no choice in the matter. This is the source of attention in rudimentary stage of intelligence when the receptive faculties are developing. Carpenter says :—"In the young child, as among the lower animals, the attention seems purely automatic, being solely determined by the *attractiveness of the object;* and the diversion of it from one object to another seemingly depends upon the relative force of the two attractions. It is this automatic fixation of the attention on the sense-impressions, received from the external world, that enables the infant to effect that marvelous combination of visual and tactile perceptions which guides the whole subsequent interpretation of its phenomena." As intelligence advances the attention becomes more and more under the control of the mind, although many remain throughout life in a state of mental infancy. The slightest outward impression will take hold of their consciousness. They have no power to keep their minds upon anything for any length of time. They are victims of change. Send them on an errand, and on the way they will encounter all sorts of wonderful things which will impress them for the time being. When they reach their destination they have forgotten the message, and it is with the greatest difficulty they can recall it. They are quick in the reception of a new impression, but the traces of these impressions are lost sight of as quickly. One impression follows another in such rapid succession that no time is given for their proper arrangement, for every impression must take its place amongst its fellows if it is to be of any future use. These people possess little or no power of continuous thought. The direction of the attention is not governed

by their own will, but by outward stimuli or by the will of others.

In mature intelligence, however, any remarkable sensation would, almost instantaneously, arouse *voluntary* attention. Necessary attention may thus be regarded as a predisposing cause of voluntary attention rather than a special kind in itself. We accordingly see that the highest degree of attention is that dependent upon the *will*. Our interest in special objects awakens in us a desire to know them more fully. Desire impels the will. Interest in an object has a great deal to do with the attention which we naturally pay to that object, and hence with the memory of it. Here we see the great influence of previous habits upon us. How important it is what habits we contract! for "men's thoughts are much according to their inclination; their discourses and speeches according to their learning and infused opinions, but their deeds are after as they have been accustomed." In this connection the following passage from Abercrombie may be read with advantage:—

"That degree of attention which is required for the full remembrance of a subject is to be considered as a voluntary act on the part of the individual, but the actual exercise of it is influenced, in a great measure, by his previous intellectual habits. Of four individuals, for example, who are giving an account of a journey through the same district, one may describe chiefly its agricultural produce, another, its mineralogical character, a third, its picturesque beauties; while the fourth may not be able to give an account of anything except the state of the roads and the facilities for traveling. The same facts or objects must have passed before the senses of all the four, *but the remembrance of them*

depends upon the points to which their attention was directed. Besides the manner here alluded to, in which the attention is influenced by previous habits and pursuits, some persons have an active inquiring state of mind, which keeps the attention fully engaged upon whatever is passing before them; while others give way to a listless, inactive condition, which requires to be strongly excited before the attention is roused to a degree required for remembrance. The latter are apt to say that they are deficient in memory; their deficiency, however, is not in memory but in attention; and this appears from the fact that they do not forget anything which deeply engages their feelings or concerns their interest." This habit of listless inactivity should be carefully guarded against in the young. What responsibility rests upon the teacher!—upon those who "teach the young idea how to shoot" Alas, how this is overlooked! There is no profession more honorable and more important than that of the teacher. He sows seeds which, in after years, will bring forth fruit—good or evil—for "the child is father to the man." It is seldom that parents realize the part which teachers take in the formation of their children's character, and they show this by the lack of confidence which they so often manifest. Is the teacher encouraged in his attempts to infuse ambition into a lazy boy or to maintain strict discipline? It is seldom a good disciplinarian has occasion to punish. And when this occasion does occur he has at heart the boy's interest. He looks for good results. How often habits of listless inactivity of mind are brought on by setting long and wearisome tasks as punishments! Mind-wandering and distaste for work set in—habits that will adhere to the

victims for life. Let the child be taught to direct his attention to the subject in hand with all his heart and soul. If it is play, let him play in earnest, for "whatever is worth doing is worth doing well." Let the lessons be short and interesting; for the young mind is not equal to any prolonged exertion. To cultivate the power of attention in the very young child, the Kindergarten system is undoubtedly invaluable.

It must not, however, be concluded that this apparent sluggishness of mind is always due to habits of inattention. It may be due to the power of continuous attention. The mind may be so much engrossed with one idea as to shut out all outward impressions. Many a boy gets the reputation of being *clever* if he can readily take up new impressions—if he can jump from one thought to another. These impressions are often lost as quickly as received. No time has been given for a clear and distinct record. This characteristic may be of use to a business man, but it is, nevertheless, a mark of shallowness of mind. On the other hand, a boy who is introspective, and unable to skip from one trifling thought to another is considered *dull*. Strange to say, he is looked upon as inobservant simply because his mind is enchained by one object or by a train of thought. It is often remarked in England that a Scotchman cannot "see a joke." In America, all who come under the term "English" are considered dull in this respect. This is one of the fallacies so prevalent amongst us—that of arriving at general conclusions from particular instances. The Scot may not possess the ready witticism of the Irish, but he excels in profundity and continuity of thought, essential to the true philosopher—essential to a Hume or a Hamilton.

This power of protracted attention is to be coveted. It is said of Sir Isaac Newton, that, when he was questioned respecting the mental qualities which formed the peculiarity of his character, he referred it entirely to the power, which he had acquired, of continuous attention. "When he was asked," says Mr. Whewell, "how he made his discoveries, he answered, 'By always thinking about them,' and at another time he declared that 'if he had done anything, it was due to nothing but industry and patient thought'; 'I keep the subject of my inquiry constantly before me, and wait till the first dawning opens gradually, by little and little, into a full and clear light.'"

It was by this habit that Newton lost his sweetheart. We thus see that even the best of habits may have their disadvantages. When a mere boy living at Grantham and preparing for the University he fell in love with a young lady named Miss Storey, and would have married her had not grim poverty forbidden. He remained faithful to her and was always her friend, though she proved consolable and married twice! After this little romance was over, his great intellect was too absorbed in science for any thoughts on the subject of marriage. His nearest approach to wooing appears to have consisted in his absently taking the fair hand of a lady and abstractedly using the little finger as a tobacco stopper! The records of "absence of mind" are full of many amusing instances, some of which show how external perceptions are misinterpreted according to the dominant idea in the mind. What a mistake it was to take the little finger of a lady for a tobacco stopper!

In the New Monthly Magazine, Vol. XVII., we find

the following account of Dr. Robert Hamilton, a well-known Professor at Aberdeen, who was the author of many productions distinguished for their profound and accurate science, their beautiful arrangement, and their clear expression:—

"In public, the man was a shadow; he pulled off his hat to his own wife in the streets, and apologized for not having the pleasure of her acquaintance; went to his classes in the college on the dark mornings, with one of her white stockings on one leg, and one of his own black ones on the other; often spent the whole time of the meeting in moving from the table the hats of the students, which they as constantly returned; sometimes invited them to call on him, and then fined them for coming to insult him. He would run against a cow in the road, turn round, beg her pardon, call her 'Madam,' and hope she was not hurt. At other times he would run against posts, and chide them for not getting out of his way."

We stated above that our interest in special objects awakens in us a desire to know them more fully. The will concentrates consciousness upon them. We seek to get a clear and distinct knowledge of them. A *clear* knowledge of an object means that we are able to distinguish it from other objects; but *distinct* implies that we notice the special properties and features of that object. We have only a clear knowledge of tastes, colors, and odors, both clear and *distinct* of figures, such as a square or a triangle, hence we can define the latter. Full and analytical knowledge must be both clear and distinct, and is secured only by the help of the *will*. We must pay attention. The function of consciousness seems to be to make us aware of the reality of an object;

then attention comes in and gives us a clear and distinct knowledge of it. We thus see that attention is a most important aid to memory. It retains the object before the mind more than the usual time, and the impression is deepened. The element of time comes in. Those who can readily commit to memory usually forget as readily, because they allow no time for a vivid impression. What they learn is like Jonah's gourd; it comes up in a night and it perishes in a night. Whereas, those who have to plod have generally a strong power of retention. The longer we attend to things, the more relations we establish between them. The power of suggestion with regard to these things is increased. The links by which we recall the past are thus increased in number and in strength. Besides all this the act of attention is free and voluntary. Knowledge lasts if freely acquired, but readily passes away if forced and constrained. When the "will" consents and joins, our whole nature is involved. What we seek to acquire becomes part of ourselves. It is by the free contemplation of an object we look at it from all sides. We compare it with others. We classify it. We understand it. Pascal said that he never forgot anything he understood. He does not say anything he had read or noted, but *understood*. Let us comprehend our subject. We forget a subject because we have not understood it, because we have not established a relation between it and the already known, because we have not introduced it to its fellows in the great storehouse of ideas. It stands in comparative isolation, hence in oblivion. Ideas lie in the human mind, not in isolation, not in a disordered heap, but in an associated form. One idea suggests another.

Attention an aid to Memory.

The Principle of Contrast.

Again, it is by dwelling upon objects we see the difference between them. The principle of contrast lies at the very root of attention. If all things were the same we would take no interest in them. Equal attention to all things is no attention at all. The act of concentrating our consciousness upon one object implies difference and discrimination of that object from others, and here is a judgment. The man who can amuse himself with many subjects, who can turn to the most varied forms of effort, will have a freshness of attention unknown to the plodder in the same old groove. When we are tired of one subject let us take up another of a different kind. Let classics be followed by mathematics. This is the principle upon which time tables in schools ought to be based. The heavy subjects come in the morning, each followed by another contrasted with it as much as possible. The child's attention is thus kept fresh. This is the law of taste in dress. Each color blends with the others in unison of difference, which is the true and only unity we have in the world—unity in and through difference.

It may be asked, "Can this power of attention be cultivated, or is it hereditary?" Both questions may be answered in the affirmative.

Cultivation of the power of Attention.

Robert Houdin, the celebrated French conjurer, gives perhaps one of the best examples of the systematic cultivation of the attention and memory in his description of his preparations for the well-known trick of "second sight," the success of it mainly depending upon the rapidity with which the information given by the sense impressions could be apprehended and interpreted, and the accuracy with

which they could be remembered. At first, Houdin put down a single domino, and asked his son to give the number of points, without counting them. Two dominoes were then taken, the number of points being correctly given. The following day they could name the points on four dominoes at the first glance. After attaining considerable success with the dominoes, they applied themselves to more difficult tasks. The following are Houdin's own words:—"My son and I would pass rapidly before a toy window, or any other displaying a variety of wares, and cast an attentive glance at it. A few steps further on we would draw paper and pencil from our pockets, and try which could describe the greatest number of objects seen in passing. I must confess that my son reached a perfection far greater than mine, for he could often write down forty objects, while I could scarcely reach thirty. Often feeling vexed at this defeat, I would return to the shop and verify his statement, but he rarely made a mistake. My male readers will certainly understand the possibility of this, but they will recognize the difficulty. As for my lady readers, I am convinced that they daily perform far more astonishing feats. Thus, for instance, I can safely assert that a lady seeing another pass at full speed in a carriage, will have had time to analyze her toilette from her bonnet to her shoes, and be able to describe not only the fashion and quality of the materials, but also say if the lace was real or not. This faculty, natural or acquired among ladies, my son and I had gained only by constant practice. It was of great service in my performance, for while I was executing my tricks, I could see everything that passed around me, and thus prepare to foil any difficulty pre-

sented to me. The exercise had given me, so to speak, the power of following two ideas simultaneously, and nothing is more favorable in conjuring than to be able to think, at the same time, both of what you are saying and what you are doing. I eventually acquired such a proficiency in this that I frequently invented new tricks while going through my performances."

The above shows to what an extent the faculty may be strengthened. There is no doubt, however, that the acquirements of one age become the inheritance of the next. Examples of this transmission are especially seen in savage life. The Mongols of Northern Asia and the Hottentots of Southern Africa have a wonderful power of seeing objects at a great distance. This is the result of living in vast plains. In "King Solomon's Mines" we find the Hottentot Ventvogel, to the delight of his companions, in the parched desert, crying out, "I smell water." Humboldt relates that the Peruvian Indians can detect by scent the approach of strangers. The American hunter finds his way in the trackless forests by attention to minute appearances in the trees. He traces the progress of his enemies or his friends by the marks of their footsteps; and judges of their numbers, their haltings, their employments, by circumstances which would entirely escape the observation of persons unaccustomed to the mode of life requiring such exercise of attention.

Is it not, therefore, a matter of great moment what we, in this respect, hand down to posterity? If habits of inattention are universally contracted, do we not, to that extent, contribute to the deterioration and downfall of the race?

Whatever may be the *ultimate* results of a weak direct-

ing power of the will, we know what some of the immediate consequences are. Foremost among these we may mention mind-wandering. This is inability on the part of the *will* to direct our mental energy. The mind, like a ship without a helm, is left to its own automatic action. The will is too weak to assert its power. This is a weakness with which the majority of people are not unacquainted. If it is allowed to become a habit, the result will be absolute inability to direct the attention to any particular subject. Let us see how it operates. You start to read a book and meet the word "conqueror." All of a sudden you will think of William the Conqueror landing at Pevensey. Then you think of Cæsar landing in the same spot eleven centuries before. Next, following the career of Cæsar, comes the thought of him crossing the Rubicon and triumphantly entering Rome; and of his subsequent arrival in Egypt in pursuit of Pompey. This leads you to contemplate the antiquity of the land of the Pharaohs, even of the phœnix itself —that fabulous Egyptian bird which is said to live five hundred years; to put an end to its own existence by placing itself on a burning pile of aromatic wood, its ashes giving birth to its young. This brings you to reflect upon the "immortality of the soul," of which this bird is an emblem. At the end of this excursion—from William the Conqueror to Eternity—you find you have mechanically read the page. But what are the contents of that page? You do not know because your mind was elsewhere. It is true you kept on reading, but the mind was not present to assimilate the ideas. The eyes and organs of articulation do their work wherever the mind is. One follows the other

Mind-wandering.

mechanically. It is one of those actions which, after repetition, are performed without any conscious effort on our part. The same principle is often exemplified in the performance of a piece of music. It is to inattention we must attribute many inaccuracies and failures in memory. Again, what mistakes are made in the construction of sentences and in punctuation—all owing to lack of attention! The clergyman who gave out as his text "Sorrow endureth for a joy, and night cometh in the morning" was evidently occupied by some dominant idea. A recent number of a contemporary contained the following advertisements:—"A parlor and bedroom for a man and his wife 16 feet square are advertised"—a big wife! "Wanted, a walnut-wood cottage pianoforte by a bachelor with carved legs." At a wedding the other day, one of the guests, who is a little absent-minded, observed in a grave manner, "I have often remarked that there have been more women than men married this year." King Edward II., who was assassinated at Berkeley Castle, is said to have lost his life by the misplacement of a comma.

> To shed King Edward's blood
> Refuse to fear, I count it good.

The insertion of the comma after "refuse" alters the meaning considerably. The keeper accepting the error, probably a willful one, allowed the king to be murdered. On one occasion the following was quoted, "A woman without her man, is but a savage"; also, "A sailor going to sea his wife, wishes the prayers of the congregation for his safe return." This is not very flattering to the ladies. If people were to keep their minds present, and pay attention to what they are deal-

ing with, these and similar absurdities, which we meet with now and again, would not occur.

What are the conditions favorable to the exercise of this power? Fatigue of mind or body is certainly unfavorable. When tired it requires the greatest effort of the will to keep our minds upon any particular object. This matter is of great moment to the student. Often his lucubrations are carried on to the depth of night, or rather his mind-wandering is carried on, for after two or three hours' earnest work the mind becomes fatigued and mind-wandering sets in. To avoid this there ought to be an interval or change of subject. Let one or two hours be given to classics and the next hour to mathematics. Change of occupation often proves a recreation. Students too often waste their time during the first part of their college session. To make up for this lost time they devote the last month to cramming, necessitating inadequate sleep. The tone of the body is reduced, and the results are complete breakdown and utter forgetfulness as soon as the examination is over. Steady and honest work throughout the session will avoid this burdening of the mind, and during the holidays absolute rest should not be indulged in. Virtue is medium between two extremes which in themselves are vice. Let the student keep himself in practice by devoting one hour every day to earnest study.

The physical expression of Attention

But what does Physiology say about attention? As an answer, let the student read what Dr. Ferrier says. His words are quoted in Lesson XV.

We thus see the importance of looking at the speaker if we wish to follow him and to remember what he says; also the value of object lessons in teaching the young

and of the Kindergarten system. In memory the representative object—object in idea—is brought within the field of ideal vision, although in mental imagery there may not be the vividness experienced when the actual object was present, for time has done its mellowing work.

Before leaving this subject let us consider for a moment its negative side—*abstraction*. Consciousness is limited, and this fact throws considerable light upon the nature of abstraction and its relation to attention. Concentration of consciousness upon one attribute of an object means withdrawal of consciousness from the other attributes. This withdrawal is called abstraction, which is thus simply the negative side of attention. The two processes form the negative and positive poles of the same mental act. The word itself is ambiguous. Looking at an object possessing a variety of qualities, we may be said to abstract one of the qualities from the others. The abstract idea is one withdrawn from the other ideas—"ab" = "from," and "trahere" = "to draw." On the other hand, we turn away, or abstract, our regard, from the other qualities of an object and attend to one. Here the *mind* is abstracted, not the quality. It is a matter of mere terminology. Attention to one special object implies abstraction from the others, and *vice versâ*. The former meaning is to be preferred because it is less negative. To the psychologist this subject of abstraction is of great interest and has been the field of much controversy. It is the medium by which we acquire *general* ideas. (1) We abstract—attending to one point out of many. (2) We compare these simple points derived from many sources. (3) We perceive resemblance and thus gen-

eralize. This is the process we go through in classification,—abstraction, comparison, and perception of resemblance.

Without following this train of thought any further we may mention the great power some people possess of withdrawing their attention even from physical pain. It is not difficult to imagine that the martyr at the stake suffers no pain. "Some of Robert Hall's most eloquent discourses were poured forth whilst he was suffering under a bodily disorder which caused him to roll in agony on the floor when he descended from the pulpit; yet he was entirely unconscious of the irritation of his nerves by the calculus which shot forth its jagged points through the whole substance of his kidney, so long as his soul continued to be 'possessed' by the great subjects on which a powerful effort of the will originally fixed it." Similar account is given of Sir Walter Scott.

At the end of this brief sketch let us repeat that it is of the greatest moment to get a vivid impression—to direct our attention with intensity to whatever we are engaged in.

Examination Paper.

1. What do you mean by "distinct" and "clear" as applied to knowledge?

2. Can the power of attention be cultivated? Give examples.

3. What is mind-wandering?

4. How is it that we can read and yet be thinking of something else?

5. What are some of the results of inattention?

6. "Change of occupation often proves a recreation." What lesson do you draw from this?

7. What is "abstraction"? What is the relation between attention and abstraction?

8. Give a condensed abstract of the foregoing sketch of attention.

LESSON XXIV.

(*Optional.*)

PERCEPTION.

THE special powers of knowledge may be divided into two classes according to the nature of the object of which they take cognizance—those which deal with the *real* in our experience and those which deal with the *copy* or image of the real. The former are intuitive, stand face to face with reality, and *gain* knowledge. The latter are representative; they *retain*, *recall* and *modify* our knowledge.

The Characteristic of Intuition.—The intuitive act is immediate and direct. The object of the act is present in time. It exists while we are conscious of it. Perception, both external and internal, must be looked upon as *special* and *intuitive*.

External perception comprises sensation proper and perception proper, for both of them have reference to the real outer world. In sensation, though directly conscious only of the affections of ourselves, still we are indirectly conscious of these affections as effects of powers outside of ourselves.

In perception proper, however, we are brought into direct relationship of knowledge with material reality, which reality must exist in space as extension and in time as succession—being limited to what is *here* and *now*.

This important subject of external perception is a boundless field of discussion. We can do at present

but little more than explaining the terms sensation and perception, thus paving the way to the better understanding of the subject of memory.

SENSATION.—The general view now is that matter in motion is the immediate cause of sensation. Ether or air in vibration is the cause of sight and sound. We, however, know not the motion but the sensation—a mental element wholly different from any form of motion. Our sensation does not in the least resemble the qualities of the external world,* and probably of itself would not suggest an external world at all. But we believe that each sensation is related to something outside the mind; and it may be shown that this reference of sensation to a definite external cause is an inference—a matter of experience.

Physiologists say that outward stimuli are not the only possible causes of our sensation; that external agencies can give rise to no kind of sensation which may not be produced by internal or intra-organic causes. We see flashes of light and hear ringing sounds without any external stimuli to excite these sensations. The same may be said of dreams and spectral illusions. Dr. Carpenter says:—"Moreover, if there should be a contracted state of the vessels of the part of the sensorium which receives the nerves of the external senses, whilst there should be only partial reduction in the blood supply of the portion which serves as the center of the nerves of the internal senses, we have the rationale of the state of dreaming, in which there is con-

* We have external material reality in two forms. 1. Our own bodily organism, which possesses the qualities of matter such as extension, figure, and resistance, is extra mental. 2. The world beyond that organism is both extra mental and extra organic.

sciousness of cerebral changes while there is none of sense impressions. The chief peculiarity of the state of dreaming appears to be that there is an entire suspension of the volitional control of the current of thought which flows on automatically, sometimes in a uniform, coherent order, but more commonly in a strangely incongruous sequence. The former is most likely to occur when the mind simply takes up the train of thought on which it has been engaged during the waking hours, not long previously; and it may happen that, in consequence of the freedom from distraction resulting from the suspension of external influences, the reasoning processes may thus be carried on during sleep with unusual vigor and success and the imagination may develop new and harmonious beauty."

The abnormal cause, such as febrile delirium, as it affects the different sensational nerves produces the sensations proper to those nerves. There seems to be no difference between these sensations and those excited in the normal way; the former, however, arise from the affection of certain nerves without any outward stimulus. Now the fact that the nerves proper to each sense are idiocratic or capable of giving forth their ordinary sensations even in abnormal excitations leads us to ask, "Does the artificial stimulus—imagination or what not—excite *new* or merely revive *old* sensations, recall them from latency?" If we are to show that a stimulus applied to certain sense-nerves produces definite sensations, we ought to make sure that the nerve and sense apparatus are free and pure—that they are in the same condition as if operated upon for the first time. But all the senses have been in use—have manifested their proper sensations—sensations which have faded away

from consciousness; but have these sensations left no nervous susceptibility? How do we know that the sensations are new or merely the revival of the old? To prove that an old form of sensation can be revived is very different from proving that the sensation is directly produced by stimulus for the first time. It is a question whether the condition would afford a fair experiment. No doubt the excitation is, in many cases, a bringing back from latency, as in spectral illusions where you have not only sensations but forms and figures. Abnormal excitations such as febrile illusions will bring out surprising things from the great storehouse of ideas—memory.

But what is sensation? The common opinion of philosophers is that it is a state of conscious mind dependent upon certain organic changes, but itself a purely mental modification. This is the view of Descartes, Malebranche, Locke, Condillac, Berkeley, Reed, Stewart and Brown. On the other hand Aristotle, Hamilton and Mansel hold that sensation is not a purely mental state but a state of mind and body taken together—of mind as animating the bodily organism or of the bodily organism animated by the mind. This theory gives a marked distinction between the sensations and the emotions or higher feelings which the soul can have by itself. Discussion of this question may lead us away from our subject. Suffice it to say that sensation seems to be an affection of the conscious mind, which is, however, percipient and sentient in and through the organ of sense.

PERCEPTION.—What is the nature of our knowledge of the external world? This question lies at the root of all psychology and metaphysics, and settlement of

it gives a character to all our philosophical systems. The battle-field of philosophical skepticism as to the possibility of true knowledge has been the field of external perception. Modern speculation began with Descartes, who maintained that there was something intermediate between mind and matter. Locke held that the object apprehended was a mere representation of what lies beyond. Berkeley said that there was no reality beyond the idea, "*esse est percipi*," and Hume that all we know is an impression—a passing moment of consciousness—and that we deceive ourselves in elevating this into a permanent and substantial external world. He consistently carried out this principle to the utter abolition of outer independent world. This is, however, proceeding on the assumption that consciousness cannot transcend itself—that mind cannot act out of itself—that in perception we know modes of mind and nothing else.

What are the objects or qualities which we apprehend through the senses? Are they distinct from us or do we partially or wholly make them up? If distinct from us how do we perceive them? The world we *perceive* is not independent of us. The primary qualities of bodies such as extension, figure and resistance, are no doubt independent of us; but tastes, smells, sounds, colors—what we call secondary qualities of bodies—are not qualities of external objects. To speak of heat in fire and whiteness in snow is in a sense an abuse of words. In this connection we may refer to the humorous account given in the "Guardian" of the attainments of a youth from college and a display of them when on a visit to Lady Lizard, his mother: "When the girls were sorting a set of knots, he would

demonstrate to them that all the ribbons were of the same color, or rather of no color at all. My Lady Lizard herself, though she was not a little pleased with her son's improvement, was one day almost angry with him: for, having accidentally burnt her fingers, as she was lighting her lamp for her teapot, in the midst of her anguish Jack laid hold of the opportunity to instruct her that there is no such thing as heat in the fire."

Of the many theories brought forward to explain the nature of our knowledge of the external world that of Intuitive Realism seems to be the most satisfactory. In intuition the thing is known *directly* and *immediately* —without the medium of anything else. Immediate knowledge of the states of our mind is the foundation of our belief in their existence, and if we have intuitive knowledge of the external world, we are warranted in believing that the reality exists—at least as long as we perceive it.

But what is the medium by which we get sensation and perception? Sense impressions are connected with general and special organs.

1. We have a general sense—*sensus communis*, the material organ of which is spread over, or under the surface of, the whole body—with no definite seat. To this sense are referred sensations of heat, cold, and the like. Physiologically it is probable that these sensations are affections of the whole sense-nerves of the body, and that these sense-nerves have at the same time their own special susceptibility. 2. We have fixed senses which have special organs—the sense of sight, hearing, smell, taste, touch, the muscular sense and the locomotive sense. Touch proper arises from contact of any part

of our body with any other object, and may be regarded as intermediate between the common sense and the fixed senses—being related to definite nerves though not to definite locality. The sensations accompanying muscular effort, such as stretching, contraction, cramp and fatigue, we attribute to the muscular sense. Closely connected with this is the power of locomotion through space. Speaking generally we get through the senses both feeling and knowledge of the outside world. The former we call sensation, the latter perception.

The bodily organism is thus the instrument or condition of sensation and perception. My body is an object distinct from *me*, the immaterial mind. It is the intermediate between the extra-organic world and pure mind.

Sight.—While the other senses inform us only of single or special qualities in objects, the sense of vision makes us aware of objects as possessing a great variety of qualities. In the other senses our knowledge is principally confined to what is in immediate contact with our organism. In the mature sense of vision, on the other hand, we go out to all objects that fill heaven and earth.

Light and color are due to sight. A man born blind can attach no meaning to color. There may be a perception of light and shade, but no distinction of color. Other senses may be taught to distinguish certain colors. Persons have been known to mark out a black dress by its smell. We have good evidence that blind persons have acquired the same power by touch—black imparting to the sense of touch the greatest degree of asperity and blue the least.

Can we have sensation of color apart from perception

of extension? Dr. Brown and the rest of the sensational school answer in the affirmative, and say that we have color first, and then by association we connect it with extension—with objects. But can we be percipient of absolutely void space? If so, we can be percipient of extension apart from color, but of bodiless space we have no perception or conception. If we can distinguish two colors presented to us, there must be a dividing line between them; and if so, they must be coadjacent in extension, and must be spread out in length, that is, in space. Thus we have color necessarily connected with extension.

Physiologically the sensation of light is the effect of the impinging of certain rays (from objects) on the nervous organism of the eye, either luminiferous particles or ethereal undulations. Light and color, which is merely broken light, cannot be regarded as a property of a particle of body—quâ particle of body. Hence psychology dispenses with the luminiferous theory.

Objects to be perceived through the organ of sight must transmit to the eye certain rays of light which, proceeding from the extremities of the object, form —at the point of vision—an angle of greater or less acuteness. In passing through the material of the eye the rays undergo a certain amount of refraction, and the result of the whole is a picture on the retina. While outward objects are erect and perceived as erect, the picture on the retina is always inverted—having but two dimensions—length and breadth. A sphere is a flat surface. A cube is also flat whose surface is shaded in different ways. We doubtless come to distinguish the square and the cube by the interpretative power of the mind acting on the perceived

difference in the shading of the cube. The eye has been described as an optical instrument of great perfection adapted to produce on the surface of the retina a complete picture of the luminous object before it—picture in which forms, colors, lights and shades are all accurately represented.

Function of Picture.—The function of this color picture in vision is to form the condition of an act of consciousness. In this act we form certain ideas concerning figure, size, and distance of the object represented on the retina—ideas obtained either intuitively or inferentially. All the experience and observation of the earliest actions of the human eye point to the conclusion that *at first* we have no apprehension of the relative distance of objects. There may be a vague reference of the luminous impressions to outward objects, but no perception of relative distance, which is simply a degree of externality and is measured by the length of the ray drawn from the object to the eye. We perceive merely the termination of such rays, and as they may occupy a certain portion of the surface of the retina we may perceive breadth. We can no more perceive the length of a ray than we could tell the length of a stick by looking at its breadth at one end. Our knowledge of distance is acquired by connecting the visual sensations with those of touch. The chief part of the knowledge acquired through sight is not due to the sense of sight proper, but to the interpretative power of the mind acting on the data of impression on the retina. This mental exercise is partly instinctive and partly acquired. The first step in the formation of visual knowledge is the natural tendency of the mind to project the image

on the retina into an external sphere—a sphere beyond that of the eye. Thus the mind reaches a certain consciousness of direction, but whether this is possible apart from touch is another question.

Along with this projection of the inverted image is the conviction that the object itself is erect; and conjoined with this instinctive tendency we have immediate knowledge of outness, extension, solidity, distance and resistance derived from touch and locomotion.

We have different visual impressions from the same tangible objects; hence we associate varied perceptions with varied distances. Thus gradually the visual impressions becoming signs of degrees of distances are no longer attended to as such, and the distance becomes apparently an object of perception. Our principal means of estimating near objects is the muscular effort required to bring together the axes of the eyes. As the object is brought nearer, the degree of convergence necessary for distinct perception becomes greater, until at last the effort is painful. As the object recedes the convergence ceases, and the axes become parallel. Hence distant vision that is not too remote is easy and without fatigue—the organs of sight being in a state of repose. It is interesting to note how the lower animals, especially those that make their nests on the ground, seem to manifest at birth instinctive perception of externality, and to possess as perfect a sense of distance as ever afterward. This shows they are influenced by sensations which give rise to muscular movements calculated to supply their natural wants. The lower animals are born instinctively perfect, but with little or no capacity for fresh development.

Sense of Hearing.—The sense of hearing arises—as

we learn from experience—from the vibration of the air between some outward object and the ear. It is this vibration and not the sound that travels. Sound does not exist outside the sentient organism. It is the conjoint product of outward stimulus and internal susceptibility, and ceases to be when either factor is withdrawn. Reference to direction and distance is acquired and is not proper to the sense itself. It is hard to say whether sound prior to any other experience would give us any knowledge of outness. Definite knowledge of outness implies distance and could not therefore be given by sound, but sound may originally suggest a cause not dependent upon us and vaguely external.

The proper object of this sense seems to be a single sound, but the pleasure or pain we experience from the sensation of single sounds—melody—or from the co-existence of sounds—harmony—does not depend entirely upon the sensation. It involves *memory*, comparison, and even imagination. As already stated, in the execution of a piece of music the process is largely automatic, the ear being accustomed to follow and expect certain co-ordination and succession of sounds.

The quality of the note or tone depends on the rapidity of the vibrations—the number of vibrations made by the sounding body in a given time. The element of time enters into our perception of sound just as space enters into our perception of color and figure. The otherwise unrealizable element of time becomes the object of consciousness by being clothed in sound just as space becomes visible and emphatic under the garb of color.

Hearing is said to be the deepest sense. In sight the object shows its surface; but the tone betrays what

there is beneath. Sight does not penetrate into us as much as sound. This, doubtless, accounts for the wonderful fact that sound should be used to represent sensation and perception of all the other senses and the thought of the mind in preference to sight and touch. Human articulate speech is pre-eminently a language. Our instinct, if any, led us to see that sound gave us the deepest of our sensations, and is very near at the command of the will, whereas impressions on the eye or touch do not pass within the organism. The apparatus of sound, on the other hand, is internal. Hence it is that deafness is hard and distrustful; blindness soft and trustful. In itself sound seems to communicate feeling rather than thought. Music, though it fails to interpret thought expresses perfectly our feeling. Even in the outside world sounds give us a knowledge that shields us from danger and rouses in us a sympathy toward the sentient creatures of wood and field.

In thus dealing with the senses individually we must not overlook the fact that most of our knowledge is due not to one sense alone, but to the combined action of more than one. Our knowledge of an orange is not due to sight alone but to sight combined with touch, smell and taste. More depends upon the association of sight and touch than we are apt to think.

A case occurred a few years ago where an operation was performed upon a young woman who had been born blind. An attempt had been made in early years to cure her, but that attempt had failed. She was able to distinguish large objects—at least the general shadow of them without any distinct perception of form—and to recognize light from darkness. She could work with her needle (by touch) and could use

her scissors and other implements. A surgeon saw her, examined her eyes, and told her he thought he could get her sight restored. The operation succeeded. One little incident occurred which will give an idea of the education required for what seems to be a very simple thing. She could not distinguish by sight the things with which she was quite familiar by touch. She could not even recognize a pair of scissors. She had no idea what they were until she was told. Then she laughed, as she said, at her own stupidity. No stupidity at all; she had never learned it, and it was one of those things which she could not know without learning. This shows how dissimilar the two senses are and how they co-operate in the formation of our knowledge.

Cheselden speaks of a youth who had been accustomed to play with a cat and a dog. For some time after he attained his sight he never could tell which was which, and he used to be continually making mistakes. One day, being ashamed of himself for having called the cat the dog, he took up the cat in his arms and looked at her very attentively for some time, stroking her all the while. In this way he associated the impression derived from the sight of the cat with the impression derived from the touch. He then put the cat down saying, "Now puss, I shall know you another time."

The three senses—tactile, muscular and locomotive, give us a world—outer, extended and resisting. Touch gives us outness and extension; locomotion, resistance; muscular sense, outness and resistance. The sense of sight is secondary in the perception of outward extension. To these ideas we must add that of sentiency, and this feature is the great difference between our

mind (as well as our organism) and the world. The pressure of the hand against the table reveals to us that the hand is sentient, but we do not know that the table is. Pressure of one hand against another shows extension and resistance, but nothing extra organic, for there is sentiency in both hands. But putting our hands upon a stick makes us aware of outness—of something not ourselves.

From these original perceptions we readily acquire others:—

1. An extended object must occupy space—the fundamental conception of *body*. The purely spiritual can exist in time alone. Analyze space into time and you have but one reality—the spiritual.

2. If extended, the body is *divisible*—at least in thought.

3. Extended surface is not infinite, and is therefore bounded. Bounded extension is figure.

4. Body in space is limited. Space is unlimited. We thus obtain the idea of possible change of place—*motion* and its correlative *rest*.

We now see that our knowledge is built up by the conjoint action of the different senses. These senses tell us of what is in contact with our organism. They therefore cannot lead us far astray.

Deception arises from our mistakes in judgment and inference from the data of sense.

We are still within the sphere of our subject, for we have seen that *impression* is the first element of memory. Before leaving this important and interesting subject a few words concerning *Internal* Perception will not be amiss.

Internal perception or self-consciousness is an arrest

of any special state or act of mind. It looks rather to the act than to the object. It is a general power of knowledge, but it may be cultivated so as to become a special faculty of reflection. It is important, for it gives us knowledge of our own mental states which appear in time only, with no reference to space or externality, and in this sense it may be regarded as a special power—one taking cognizance of time impressions only. Time is thus the law of our inner perception, and is necessary, universal, native, not derived from, but realized by experience. So is space. Thinkers differ as to whether time and space are objects of perception in the concrete form, that is, when clothed in extension and phenomenon. No one would say they are perceived *per se*. Some say that they are forms superinduced upon things by the mind. Let the reader think for himself.

Having thus given a brief sketch of consciousness, attention and perception, I trust we are better able to treat of the subject of memory.

Examination Paper.

1. What is the characteristic of intuition?
2. Define sensation and perception.
3. Does sound travel?
4. Give some reasons why sound should be used to represent sensations and perceptions of other senses.
5. Write out a table of the different senses—giving the nature of our knowledge derived through each.

LESSON XXV.

MEMORY.

MEMORY is at the root of the representative powers. In it, as before stated, we have a knowledge of the absent object by the mental picture. In looking at an object of perception we grasp its features and its details, and the result is a mental product or thought which remains after the object itself is taken away. The primary act of knowledge is the making of a clear and distinct mental image. Hence, as already pointed out, the more perfectly we apprehend and comprehend the better we remember.

Difference between Perception and Memory.—The difference between perception and memory has been expressed as follows:—In the former there are two elements—the object and the consciousness of it; in the latter the object has passed away and the consciousness of it remains. This statement is open to criticism, for the consciousness must pass away with the object, but there arises a new consciousness of the picture formed on the occasion of the presence of the object. Memory, therefore, may be defined as the *consciousness of a thought image* which is believed to be a correct representation of the past reality. It deals with the real and is thus the continuation of perception. In the one case we believe that the object *is* and that we know it; in the other that it *was* just as we picture it.

Conviction of the Reality of the Past.—It is interesting to notice what implicit reliance we place upon our memory. We have a strange assurance that the pres-

ent involves the past. But what is the guarantee of this belief? This question cannot be answered. Reasoning cannot explain it, for memory is involved in all reasoning. To draw the conclusion we must remember the premises. To prove the existence and action of the instrument we must make use of the instrument itself. All we can say is that our conviction concerning the past reality is a fundamental fact of consciousness. We trust our memory because it is natural to do so. But this is a statement of the fact and no proof.

Fallacies of Memory.—Though we thus believe that we have an exact reproduction of our former states of mind yet we are often deceived. Time modifies the mental trace. The impression fades away, leaving but a dim consciousness of past experience, and fallacies are not uncommon. Miss Cobbe in reference to this matter says:—

"It happened once to the writer to hear a most scrupulously conscientious friend narrate an incident of table-turning, to which she appended an assurance that the table rapped when *nobody was within a yard of it.* The writer being confounded by this latter fact, the lady, though fully satisfied of the accuracy of her statement, promised to look at the note she had made ten years previously of the transaction. The note was examined and was found to contain the distinct statement that the table rapped when *the hands of six persons rested on it.* The lady's memory as to all other points proved to be strictly correct; and in this point she had erred in entire good faith."—("Hours of Work and Play," p. 100.)

This is one cause of the false reports that get abroad. Some there are whose memories are not reliable.

Others are fond of exaggeration, so much so that they arrive at a state of mind in which they are not certain whether they say the truth or not—a state in which falsehood is more agreeable than truth. Let us beware of this deplorable state of existence, in which one puts aside his true being to give way to a belief in his own lie—a vice which forsooth we hate.

> "Yet seen too oft, familiar with her face,
> We first endure, then pity, then embrace."

This faculty of memory, if we may so call it, in whose trustworthiness we have such confidence, must be of great importance.

This is seen from the fact that without it knowledge would be a continual whirl of impressions. The universe for us would be a phantasmagoria. With it we are able to assert the unity and supremacy of mind amid the infinity of these impressions. It is the beginning of all knowledge, for we know one object not in isolation but in its relation to others which we have already experienced—each is a part of one vast whole. There are differences, but true unity is unity in and through difference. It is also the end of all knowledge, for if you abolish memory you cut off all communication with the past and the future. We are able to throw ourselves into the future only by our knowledge of the past and present.

We now can give at least one meaning to Plato's statement — "All knowledge is but remembrance." How important then memory is! Æschylus called it "the mother of the sciences"; Cicero, "the treasury of all things"; Plutarch, "the larder of the soul"; Locke, "the storehouse of ideas." It is the *key of*

knowledge—a key to enter the faded past, understand the present, and obtain a glimpse of the future. It enables us to reflect upon the experience of the past and bring this experience into the present and the future. It enables the old to live a life of youth again. It withdraws us from the power of the senses and advances us in dignity of being. It is history itself.

It is obvious that the thought image may continue to subsist in consciousness after the act of perception. Recalling what was once an act of mind is only a part of memory, which is, properly speaking, just the subsistence of the mental picture and may be quite continuous with perception. The picture, however, may fall out of consciousness, and we have the state of forgetfulness or oblivion—a state of passivity as opposed to the cognizant act of memory. This state is to some extent necessary because we have to make room, as it were, for the reception of new objects. The peculiarity of forgetfulness is that it is not absolute but capable of repair. There is a power of retention of the thought image out of consciousness. At least there is a power to recall a copy passed out of consciousness long ago. This is the great mystery of memory. It makes mind wider than the present consciousness. Although the image has fallen below consciousness, it has not fallen below the power and the compass of the *ego* or self with which it has once been connected. But what is the state of this image sunk below consciousness? The term *mental latency* has been applied to this state of mind. But this is rather a statement of the fact—one which provides for the possibility—than an explanation of the process. Still this latency—this power of concealment and then of revelation—is a great fact in the

history of mind. It makes it possible to realize at any given time all that there is in the mind. This is in harmony with the supposition that we forget nothing. Everything we have ever thought of is indelibly registered in the great book of memory. In the normal state of health we may not be able to recall everything, far from it. But this does not imply that the record is not made and kept. It is kept and may be recalled under favorable circumstances. It is merely covered over with the cobweb of time.

"An ignorant servant girl, mentioned by Coleridge, during the delirium of a fever, repeated passages from theological works in Latin, Greek and Rabbinical Hebrew which, being taken down and traced to the works from which they were derived, were found to be repeated with perfect accuracy. It turned out that she had been servant to a clergyman, a man of much learning and peculiar habits, who was accustomed to walk forward and backward, along a passage in his house which led to the kitchen, and there reading aloud his favorite authors."

In this case even sounds – for she did not understand —were recorded, retained and recalled when the favorable condition was fulfilled—namely, a fever in which more blood than usual was driven to the brain.

"A similar case occurred in St. Thomas' Hospital, London, of a man in a state of stupor in consequence of an injury of the head. On his partial recovery he spoke a language which nobody in the hospital understood, but which was soon ascertained to be Welsh. It was then discovered that he had been thirty years absent from Wales, and before the accident had entirely *forgotten* his native language. On his perfect recovery he

completely forgot his Welsh again and recovered the English language"

His native tongue had fallen into latency, but not beyond the power of recall. The footprints had not been obliterated, but simply covered over with the sand of time. A New York clergyman told me of a lady to whom he always spoke English, but who during the last two days of her life spoke nothing but German. Such cases are by no means rare in America—all tending to prove that there is no absolute effacement of traces once made. Now and again trivial incidents that have happened long ago flash before us. We are told that there is a stage in the process of drowning in which the individual makes a *thorough* review of his whole life. This review is usually made in the reverse order of actual experience, starting from the present state of mind and going backward until the earliest childhood is reached. This shows how order is preserved in the mental universe as in the material, and how wonderfully the whole of our experience is recorded, retained and reproduced. What is the purpose of this careful registration? Not for this state of existence merely, for nine-tenths of it is not made use of. Is this permanency in harmony with extinction at death? Does it not rather point to an hereafter in which all will reap what they have sown in this life? Nay, have we not here the potentiality of a heaven or a hell?

Dr. Maudsley says:—"That which has existed with any completeness in consciousness leaves behind it, after its disappearance therefrom, in the mind or brain a functional disposition to its reproduction or reappearance in consciousness at some future time. Of no mental act can we say that it is 'writ in water.' Some-

thing remains from it whereby its recurrence is facilitated. Every impression of sense upon the brain, every current of molecular activity from one to another part of the brain, every cerebral reaction which passes into movement leaves behind it some modification of the nerve elements concerned in its function, some after effect, or, so to speak, memory of itself in them which renders its recurrence an easier matter, the more easy the more often it has been repeated; and makes it impossible to say that, however trivial, it shall not in some circumstance recur.

"Let the excitation take place in one of two nerve-cells lying side by side and between which there was not originally any specific difference, there will be ever afterward a difference between them. This physiological process whatever be its nature is the physical basis of memory and it is the foundation of our mental functions."

From what has just been said it is obvious that the power of *retention* or remembrance is not identical with that of *recall*. Hamilton says:—"The infinitely greater part of our spiritual treasures lies beyond the sphere of our consciousness." "There are ideas which we know that we have stored away somewhere but which we cannot find without looking for them. Indeed we have knowledge which we are not conscious either of possessing or of ever having possessed, yet we may be brought to recollect, days or weeks afterward, by the accidental shining in of a light upon some dark corner of our 'chamber of imagery,' that this knowledge was communicated to us, but was put away without much account being taken of it at the time."

There are two forms of recall:—1. Direct or spon-

taneous, which Cicero calls "simple suggestion." When we speak a language familiar to us the words with which we clothe our thoughts come to mind spontaneously. The connection between the word and the thought is strong—one recalls the other immediately.

2. Recall by volition—this is reminiscence, the *ἀναμνησις* of Aristotle. Here we seek to bring back an absent object to the mind. But how can we seek what we do not know? We have a present consciousness of the kind of thing we want. Then the laws of suggestion come to play, which regulate the spontaneous recall or reminiscence. We probably cannot will to recall anything, but we can cast back our thoughts over collateral circumstances, one of which will suggest what we are in search of. It is often the case that the more we try to recall the slower the brain is to respond. When we are cool and confident success is more likely to follow. Excitement tends to retard revival. We say we have *forgotten;* but we are conscious of the fact that we must have *known*. It is only a matter of striking the right chord. Reminiscence means getting into the series or train of things with which what we wish to remember is connected. Recollection is the name given to the accomplished act of reminiscence. Locke defined it by saying, "The same idea when it recurs again is remembrance; if it is sought after by the mind, and with pain and endeavor found and brought back into view, it is recollection." As already pointed out in a previous lesson, the processes of recollection depend to a great extent upon close attention and upon the principles of association of ideas.

Ideas in the mind are like knots of a network; the

lifting up of one brings up others. It is here we find the secret of the fact that some have retentive, while others have a ready, memory—the two being by no means equal. Those who possess a ready memory often have their thoughts connected by obvious and superficial links or analogy, while those whose memories are specially retentive see beneath the surface, and penetrate into the less obvious and deeper relations of things. The perfection of memory lies in the union of retentiveness and readiness, and both of these depend to a great extent upon the recording power of the mind. If the first impression is strong and vivid, the revival of it will be proportionally easy. This revival or recall finds its consummation in the representation of the object remembered. This copy must be, of course, distinguished from the original thought picture formed along with perception. The latter are what Plato called "shadows"—the "species" and "phantasms" of the peripatetic school and the "ideas" of modern philosophers.

How these ideas arise in the mind—the actual relation between the physical and the mental—has not yet been determined. The following passage from Bain may throw some light upon the matter:—"We have every reason for believing that there is, in company with all our mental processes, *an unbroken material succession.* From the ingress of a sensation to the outgoing responses in action, the mental succession is not for an instant dissevered from a physical succession. A new prospect bursts upon the view; there is a mental result of sensation, emotion, thought, terminating in outward display of speech or gesture. Parallel to this mental series is the physical series of facts, the success-

ive agitation of physical organs. While we go the round of the mental circle of sensation, emotion and thought, there is an unbroken physical circle of effects. It would be incompatible with everything we know of cerebral action to suppose that the physical chain ends abruptly in a physical void occupied by an immaterial substance; which immaterial substance, after working alone, imparts its results to the other edge of the physical break, and terminates the active response—two shores of the material with an intervening ocean of the immaterial. There is, in fact, no rupture of nervous continuity. The only tenable supposition is that mental and physical proceed together as undivided twins. When, therefore, we speak of a mental cause, a mental agency, we have always a *two-sided cause*; the effect produced is not the effect of mind alone, but of mind in company with body."

To return to our subject, Hamilton and others with perhaps undue refinement made a distinction between the power of recall and that of representation. The only difference between them seems to be the difference between the beginning and the end of the same act. The power of reproducing is proportional to that of representing, and the vividness of the picture depends upon the vividness of the first mental record as well as on the power of recall.

We have already seen that there are four elements in memory:—

1. The *representation* which deals with the image. 2. The element of *belief*, in virtue of which the image is referred to the past object. 3. The power of *retention*, which comes into play when forgetfulness supervenes and the image passes into mental latency. 4. The

power of *recall.* It is difficult to say whether it is the reproduction of the old or a new act we are dealing with.

Now we may ask the question—"Are there any genuine aids to memory—anything which may help us in this mysterious process of living again in the mellowed past?" We cannot have much faith in anything of the *"Memoria Technica" kind; still it cannot be denied that, in some cases, owing to the novelty, absolutely unnatural devices have been the means of arresting the attention, and hence of aiding the memory. I trust the principles put forth in this book are more natural and more useful. Concentration of mind upon the object present is the best natural aid we can give to memory. To give the necessary attention, the object must be kept before the mind for some time. The two elements of time and attention govern the whole history of an idea. These two, as well as conversing, writing and reflecting, will contribute toward the *thorough comprehension* of the object. The mind must actively perceive it on all sides, and in its relation to other things already known. It must be classified. The more we know about a subject, the greater is our power of suggestion with regard to that subject (See Lesson XIV.). To this end talk about the subject to your friends. Reflect upon it whenever you get the chance. "What is made the subject of rumination at odd times when the thoughts are at leisure, is pretty sure to become a part of the permanent furniture of the mind"—and a part easily recalled. If we could only get ourselves into the habit of reflection, of asking ourselves at the end of each day, "What have I learned to-day?"

*See Appendix.

"How have I learned it?" "What illustration can I give of this or that?"—if we could only accustom ourselves to this we would be on the way to a great and true progress. The old way in which the Jews were exhorted to teach their children the commandments of the Lord was a true one—"Thou shalt teach them diligently to thy children, and shalt talk of them when thou sittest in thy house, and when thou walkest by the way, and when thou liest down, and when thou risest up."

More than once I have been asked whether the cultivation of memory does not detract from other faculties—one being strengthened at the expense of another. This is looking upon memory as a limited power. It is not limited but capable of indefinite increase and improvement by exercise. It is a property of matter and mind combined. Of course there is such a thing as cultivating the *verbal* memory—memory of mere words—at the expense of the understanding. But such a memory is not worthy of the name. Some teachers of memory imagine they have made a grand discovery when they say that intelligence and memory have nothing to do with each other. Indeed, with some of them everything which they put forth is a discovery of theirs. It does not follow, however, that these things are new to others. Without memory we would have but little intelligence, for it is by means of memory we are able to make use to-day of the experience of yesterday. On the other hand, it is intelligence that makes our memories what they are. The verbal memory is of very little value. Thucydides, Lord Bolingbroke, and Dr. Leyden went so far as to complain that their verbal memory was so indiscriminately

tenacious that it was rather a hindrance than a help to their intellectual activity.

Those people who endeavor to convince the public that memory is unconnected with intelligence must have acquired their memories—if any—at the expense of intelligence. It has been my aim throughout this little volume to show that the first step toward remembrance is understanding. This is true, at least, in the case of the adult. We have been endowed with intelligence, and nature herself demands that we should make use of this intelligence in the acquisition of knowledge.

Taking this view we clearly see how the strengthening of the memory will add to the healthy activity of the different faculties.

It is quite true that deficiency of intelligence is often supplied by what is called a verbal or visual memory. But this is really not memory. It is merely a picturing power—a power of bringing before the eye a distinct picture of the printed page. Drobisch gives the following case:—"A boy of fourteen, almost an idiot, experienced great trouble in learning to read. He had, nevertheless, a marvelous facility for remembering the order in which words and letters succeeded one another. When allowed two or three minutes in which to glance over the page of a book printed in a language he did not know, or treating of subjects of which he was ignorant, he could, in the brief time mentioned, repeat every word from memory exactly as if the book remained open before him."

On the other hand, eminent men may have what we call poor memory. Montaigne says, "I can do nothing without my memorandum book." Newton, we are

told by Dr. Pemberton, was often at a loss for a word in conversation on his own discoveries. But this is owing to lack of readiness in recalling rather than inability to retain—just what we would expect in the case of a profound thinker like Newton

Although we have instances of idiots with remarkable memories and eminent men with poor memories, yet this does not prove that the two are not found together —intelligence and memory. It is said that Themistocles could name all the citizens of Athens, about twenty thousand in number. Lucius Scipio could give the names of all the people of Rome. Pliny says that Cyrus knew the name of every soldier in his army. Seneca says of himself that, by the mere effort of his natural memory, he was able to repeat 2,000 words upon once hearing them—each in order, though they had no connection or dependence upon each other. A friend of his, P. Latro, retained in his memory all the declamations he had ever spoken and never found his memory failing him—even in a single word.

In modern time there are innumerable instances of men of more than ordinary intelligence possessing unusually retentive memories—Macaulay, Gladstone, Jebb.

I shall endeavor to answer one more question, and that will practically bring this little volume to a close. "Does memory belong to the spiritual or material side of our nature?" The true solution to this question is probably found in the consideration that we as human beings are made up of matter and mind combined. The matter is necessary to the impression and its retention, but the mind—the soul, the self the *ego*—is necessary perhaps to the recall of the image, but surely to the

recognition of the identity of this image with the past reality. This can be accomplished by nothing short of the spiritual acting on the material—mind upon matter.

In this state of existence the tool of psychological memory is the brain. Without it we have no memory. But whether in a future state this tool will be changed for another instrument of a more incorruptible nature, and whether the work of memory will be thus carried on, I shall not dare to conjecture. This we shall know when we enter upon the grand eternity of spiritual existence. What is of vital importance for us to-day is to live in such a manner that when the book of memory is opened before the great white throne it may record the recognition of a true and pure life. Earthly life will not exist forever. Nay, some day there will come a terrible crash. The silver cord will be loosed, the golden bowl will be broken. Then? What then? Wise, most wise, is he who considers the possibility that his memory may in the future be the great motor in his happiness or in his misery, and who is ready to conduct his intercourse with his fellow-men in such a spirit of true, loving helpfulness that each day's work and each friendly interview may be worth remembering in the eternal hereafter, so actually laying up treasures where moth and rust do not corrupt, nor thieves break through and steal; that foremost among the joys of a future state will be happy remembrances of earthly scenes, earthly services and earthly friends; that if Lethe we cross without a taste of its waters, and if again we meet in the unending future, we may joyfully rehearse the good works of this life,

> "Unhurt amidst the war of elements,
> The wreck of matter, and the crash of worlds."

LESSON XXVI.

(*Optional.*)

MISCELLANEOUS EXERCISES.

Name—book—page.

Bookkeepers have to remember the page of a book in which certain names are written. The lawyer has to be familiar with State reports and the like—to remember the number of page and volume in which a certain report is made. Suppose he has occasion to remember that the case of WILLIAMS v. WEST is found in 2 Ohio State Reports, page 83. He can translate the figures into words—the first to give the number of the book and the rest to denote the number of the page. Of course he can adopt any device which he may consider necessary—2—83 = no vim. If the phrase or sentence thus selected is in any way suggestive of the case, it will be all the more appropriate. If the figure word is not connected by contiguity or otherwise with the names or case we can fall back upon intermediates, which must always be looked upon as means to an end.

The point is to translate the figures in question into a word, phrase, or a sentence which is directly or easily connected with the names, case, decision or act. No one will know better than the student himself what device to adopt in order to obtain this end. It is our duty to endeavor to simplify our problem as far as we can—to reduce it to its lowest terms—in short to understand it.

Name—street—number.

In the same manner we may assist ourselves to re-

member the number of the street at which our friends live. If we want to remember that Mr. Locksmith lives at No. 1956 Madison Avenue, we can proceed in this way, taking for granted that there is no difficulty as to name of street.

Locksmith—*latch*—Top latch (1956).

If the street is known by number you can select two words—the first to express the number of the street and the other the number of the house in that street.

Doctor's prescription.

In a similar manner also a doctor may be enabled to remember the number (say the maximum) of grains of a certain ingredient in a dose. Whenever we find any difficulty in dealing with figures, we may translate these figures into suitable words.

A simple method to ascertain the day of any date in the year.

If you refer to your calendar of 1888 you will find that the following figures represent the *first Sunday* in each month :—

1, 5, 4, 1, 6, 3, 1, 5, 2, 7, 4, 2.

In order to learn these figures and to remember them, let us translate them into a sentence :—

Tell or teach me how they will know how we carry on.

To-day is the second Monday in June. Suppose I wanted to know the date. This month being June, the *first Sunday* was the 3d. The second Sunday therefore was the 10th (3 + 7 = 10). Yesterday being the 10th, to-day must be the 11th.

On what day will the 4th of December fall? The

first Sunday will be the 2d, hence the 4th will be Tuesday. The above sentence will tell us on what day any date in this year will fall. It will also enable us to find the date of to-day, provided we know the number of the last Sunday—whether it is the first, second, third, or fourth. Last *Sunday* (yesterday) being the *second* Sunday in the month—knowing that it was the *second*, and that the *first* Sunday of June was the 3d, I know that yesterday was the 10th, and from the Sunday I can get the date of other days of the week.

At the beginning of next year you can get from the calendar the dates of the first Sunday in each month, and express these twelve figures in words—so for all subsequent years.

The knight's tour.

The letter L shows the move of the knight—two squares in one direction and one square at right angle to this direction. Chess players consider it a feat to be able to conduct the knight over the board, finishing at the square selected as a starting point—resting, of course, at the center of every square once and only once. To find out the many ways in which this feat can be done is a complicated mathematical problem. The following is one route:—

1—11—5—15—32—47—64—54—60—50—35—41—26—9—3—13—7—24—39—56—62—45—30—20—37—22—28—38—21—36—19—25—10—4—14—8—23—40—55—61—51—57—42—59—53—63—48—31—16—6—12—2—17—34—49—43—58—52—46—29—44—27—33—18—1.

These numbers may be translated into the following words, which may be called the "Day series":

Day—to-day—all—tall—man—rogue—share — lawyer—choose—lose—meal—rude — nudge—boy—madame—gay—no worry—mope—will she ?—join—early —mass—once—make—none—enough — muff—neat—match—tip—nail—heads—hair—dare—foe — enemy—harass—loyal—shout—lout—lack—worn—help — lame —shame—rough—mud—ditch—witch—deny — any—thing—more—rub—arm—aloof—lean — reach — nip—roar—knock—maim—deaf—what ?

If we know this series and the figure equivalent of the different consonants, we can do the knight's tour. This is a good practice to all of us, whether we take interest in chess or not, because it requires concentration. We have to think of the words—to pick out the consonants, and translate these consonants into figures. Attending to these things, we cannot very well attend to anything else. It may be necessary to give two meanings to some of the words in the above series, *e. g.*: match = anything that equals another; also = combustible substance for lighting candle.

The above numbers are not to be learned, but to be translated from the consonants.

APPENDIX.

A SHORT HISTORY OF MNEMONICS.

This is to be read by those only who wish to know something concerning the history of mnemonics.

THE father of mnemonics is said to be Simonides. This prolific poet was born at Iulis, in the island of Ceos, in 556 B. C. and died at Syracuse in 467 B. C. He spent some time in Thessaly under the patronage of Aleuads and Scopads, the chief families of the cities of Larissa and Crannon. "Scopas bespoke a poem on his own exploits, which Simonides recited at a banquet. In order to diversify the theme Simonides, as was customary on such occasions, introduced into it the exploits of Castor and Pollux. An ordinary mortal might have been content to share the praises of the sons of Leda, but vanity is exacting; and as the tyrant sat at his festal board among his courtiers and sycophants, he grudged every verse that did not echo his own praises. When Simonides approached to receive his promised reward Scopas exclaimed, 'Here is my half of thy pay; the Tyndarids, who have had so much of thy praise, will doubtless furnish the other.' The disconcerted poet retired to his seat amidst the laughter which followed the great man's jest. In a little time he received a message that two young men on horseback, whose description answered in every respect to that of Castor and Pollux, were waiting without and anxious to see him. Simonides hastened to the door, but looked in vain for the visitors. Scarcely, however, had he left the banqueting hall, when the building fell in with a loud crash, burying Scopas and all his guests beneath the ruins."

The bodies were frightfully mutilated. The work of recognition was greatly furthered by Simonides, who remembered the *position* in which each guest sat. Here was so-and-so; there was such-and-such; yonder sat Scopas. He *located* each, and here we have the key-note of all mnemonical systems—*the idea of location*

—*picture-making*. So much foreign element, however, has been subsequently brought in to supplement this primary idea that the whole machinery barely comes within the sphere of practical use. But

> "There is some soul of goodness in things evil.
> Would men observingly distill it out."

The goodness here is that picturing contributes to *attention* and order, and hence to vivid impression. The visual sense gets full play. The picture-writing of the ancient Egyptians and of the ancient Mexicans was undoubtedly based upon this principle—being intended to aid the memory.

The Greeks and the Romans carried oratory to a high pitch of perfection; and we find that for this purpose they frequently made use of mnemonical devices. Even Cicero, whose eloquence was at times irresistible, did not disparage such devices. A large house was usually selected; and the different divisions of the speech were associated with the various parts of this building. In this way a diagram of the whole speech is sketched. The different parts of the building are thus the *loci memoriales* in which everything to be remembered is to be placed. An eye memory is developed. A picture conveys a flood of meaning to the eye of the painter because he has developed the sense of sight through which he readily receives vivid impressions. It is not at all improbable that fables and the like are easily remembered owing to the fact that imagination can readily form for them a picture—can visualize them. This cannot be done with abstractions, hence the difficulty to deal with abstract qualities *per se*. The progress of idolatry and heathenism is greatly due to the vividness of visible impressions. We may add that some persons have imaginary and special places in which they locate the numbers from 1 to 100. There can be no doubt that this locating—provided it is not allowed to take the place of natural relation between things—contributes to attention and the preservation of order.

During the dark ages mnemonics shared the common fate of all literature, and we hear no more of it until we come to the end of the 13th century, when Roger Bacon (1214-1292), 'the admirable doctor,' made some reference to the subject. Exactly two hundred years after the death of Roger Bacon we find it taken up by Conrad Celtes, a German, and by an Italian named Petrus de Ravenna.

As yet the old Roman method is not materially changed. In the following century, about 1530, came John Romberch de Kyrpse, who introduced the plan of dividing in squares the walls, ceiling and floor of a room. We shall see that this is the plan usually adopted by mnemonical teachers of our time. Toward the end of this century appeared another mnemonist of considerable note—Lamprecht Schenkel. He created such a sensation that he was arrested as a magician. His published work "De Memoria," however, contains but very little addition to the old system.

In 1730 the subject was brought to great prominence in England through the effort of Dr. Richard Grey, Rector of Hinton, Northamptonshire. It was in this year that he published his "Memoria Technica." His chief contribution was the introduction of a system of numerical equivalents. This was suggested to him by the Hebrew practice of abridging sentences by the making of an artificial word from the initial letters of the words containing these sentences. We have already seen that the combination *Vibgyor* is made up of the initial letters of the names we give to the seven colors of the rainbow. The Hebrews were naturally led to this abridging process because their alphabet contained no vowels. Grey's figure equivalent method, however, turned out to be a cumbrous machinery owing to the fact that he gave value to vowels; hence the difficulty of getting words to represent figures.

Next comes the celebrated monk, Feinagle, a German by birth. He delivered lectures to crowded and fashionable audiences in France and England, about the year 1809. His method seems to be a combination of that of Simonides and Grey. In this system a free use is made of the "mnemonical key." A "key" is 100 (or more) objects located in a certain spot on the roof, walls, or floor of a room. Everything to be remembered is associated with its particular "peg" or "locality." The following words will be found in Feinagle's key:—"Tower of Babel." "Swan," "Mount Parnassus," "Looking-glass," "Solomon's throne," "Horn of plenty," "Glass blower," "Midas," "Narcissus," "Goliath," "Hercules," "David," "Castle," "Diogenes," "Æsculapius."

An example will give an idea of Feinagle's method. Henry III. came to the throne in 1216. Let 1216 = *united* according to his numerical equivalents. The next step is to associate the word

"united" to one of the key words say to *Midas*. "Midas, *or* the man with the long ears, has received a present of *three hens*; he puts one in each ear and one in his mouth. The hens are so near to each other that they are almost *united*." The initial letter of the word "hens" is "H," the initial letter of Henry. Three hens, therefore, = Henry III. just as Henry IV. = four hens. "Henry IV. was born 1366" = *muff*. "Henry IV. is four hens. We put these hens into the *muff*, one in each corner."

The very absurdity of such method will attract our attention at first, but the frequent use of it will prove very tame. In 1820 these methods were further developed by another ecclesiastic, Aime Paris. He was a successful lecturer and very little improvement has ever been made upon his system, which is practically the same as all the mnemonical systems of the present day. If, for example, two words are to be associated together, this connection is to be done by means of a story—one word being near the beginning of the story and the other not far from the end. This is all very well, but what if we forget the story itself; and, moreover, when we have arrived at the end of the story we may forget what word we are in search of. This method is of value for those only who have naturally a good memory, for the story has to be remembered. The aim doubtless is to associate the unconnected terms by embodying them in a sentence which is the unit of thought. But so much extraneous matter is usually introduced that the terms to be remembered are lost in the confusion. Aime Paris had a host of followers, the most noted of them being Reventlow, Francois Fauvel Gouraud, Dr. Pick and Stokes. Gouraud's system was exactly the same as that of Paris. In 1840 he came to the United States and met with great success. Reventlow was a Dane and shows considerable scholarship. The sentences he selects to connect the unconnected are of a scientific nature but none the more easily remembered; whereas Aime Paris and others would select any sentence however absurd.

A few examples from Mr. Maclaren's little book, called "Systematic Memory," will give an insight into mnemonical systems generally. He has a *Memory Table* consisting of 100 words called "pegs." The first seven words or pegs are:—Owl, Noah, May, arrow, ivy, bee, tea. This table or key is supposed to be known to start with, and this is a considerable task. Let book, door, world, treadmill, theater, attorney, lover be disconnected words which we wish to

commit to memory. "You must associate the word *book* with owl. Make a vivid picture of the two words. *Tax your imaginative powers.* Fix the picture ere you leave it. You can imagine a wise *owl* attentively perusing a *book*. Next comes the word *door*, which is to be associated with the second peg *Noah*. Fancy old *Noah* standing in the *door* of the ark, and looking down the side of Mount Ararat. Imagine the whole *world* covered with *May* blossoms. Imagine a poor wretch at the *treadmill* pierced by an *arrow*. Picture to yourself a *theater* overgrown with *ivy*, and an *attorney* pleading while a *bee* settles on his head; also a lady and her *lover* drinking *tea* together."

Whatever else such a method accomplishes, it certainly taxes the imaginative powers. But whether the victim will develop a morbid and unnatural inclination to imagine all kinds of absurdities is another question.

Rev. J. Hunt Cooke, of Richmond, England, has a system based upon the names of railway stations. He gives an example:— "There are ten principal railways by which we may go out of London. Select the first ten stations on each line. This gives you 100 associations, and you have little difficulty in remembering the order. It is very evident that to form an association for each word of a speech would be a prolonged task. But the prominent thoughts may be picked out and associated, such as (1) *Definition*, (2) *Importance* of the subject. We will suppose that the first railway shall be the South Western, the line with which we are most familiar. At Waterloo we must get a ticket and *define* where we are going. Vauxhall used to be a place of great *importance*. Working on this system, when I stood up to speak, I should, from force of habit, have the South Western stations in my thought— beginning at Waterloo; that would suggest that I should *define* and *describe*. When I had done that Vauxhall would rise to my thought and with it the idea of *importance*, and I should remember that I had next to speak of the importance of the subject and what I had prepared on that point would come up."

All I can say in favor of these systems is that they contribute to *attention*. The absurdities which some of them involve secure this. But they do not seem to be based upon the natural laws of mind, and therefore the study of them cannot strengthen the natural memory, for a faculty—if we may call memory such?—is developed by such exercises only as are in accordance with its own laws.

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